

The Bulletin of the
UNIVERSITY of MINNESOTA

The College of Science, Literature, and the Arts
1948-1949



Volume LI, Number 22

May 10, 1948

Entered at the post office in Minneapolis as semi-monthly second-class matter, Minneapolis, Minnesota. Accepted for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 12, 1918

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OFFICERS OF ADMINISTRATION

T. Raymond McConnell, Dean (219 Administration Building)
J. William Buchta, Assistant Dean for the Senior College (146 Physics Building)
Russell M. Cooper, Assistant Dean for the Junior College (106 Folwell Hall)
Royal R. Shumway, Assistant Dean for Students' Work and Chairman of the Students' Work Committee (219 Administration Building)
Roger B. Page, Administrative Assistant and Coordinator of Faculty Counseling (219 Administration Building)
The Students' Work Committee consists of the three assistant deans

DEPARTMENT CHAIRMEN, HEADS, AND DIRECTORS

American Studies, Tremaine McDowell (221 Folwell Hall)
Anthropology, Wilson D. Wallis (112 TSM-c)
Art, H. Howard Arnason (108 Jones Hall)
Astronomy, Willem J. Luyten (359 Physics Building)
Botany, A. Orville Dahl (8 Botany Building)
Classics, John L. Heller (118 Folwell Hall)
English, Samuel H. Monk (219 Folwell Hall)
General Studies, Russell M. Cooper (106 Folwell Hall)
Geography, Jan O. M. Broek (101A Burton Hall)
Geological Survey, George M. Schwartz (207 Pillsbury Hall)
Geology, George H. Thiel (108 Pillsbury Hall)
German, Oscar C. Burkhard (210 Folwell Hall)
History, August C. Krey (102 Burton Hall)
International Relations and Area Studies, Harold S. Quigley (210 Nicholson Hall)
Journalism, Ralph D. Casey (112 Murphy Hall)
Linguistics, _____ (317 Folwell Hall)
Mathematics, Raymond W. Brink (119 Folwell Hall)
Music, Paul M. Oberg (106 Scott Hall)
Philosophy, George P. Conger (300 Folwell Hall)
Physics, J. William Buchta (148 Physics Building)
Political Science, Harold S. Quigley (210 Nicholson Hall)
Psychology, Richard M. Elliott (112A Psychology Building)
Public Administration Training, Lloyd M. Short (13 Library)
Romance Languages, Francis B. Barton (200B Folwell Hall)
Scandinavian, Alrik Gustafson (13 Folwell Hall)
Sociology, F. Stuart Chapin (110 Nicholson Hall)
Speech, _____ (309A Folwell Hall)
Zoology, Dwight E. Minnich (108 Zoology Building)

How To Use This Bulletin

This bulletin is the basic source of information about the College of Science, Literature, and the Arts. Keep it at hand for ready reference. The Table of Contents shows the general organization of the bulletin and the Index will direct you to a specific point.

Section I describes the purposes and programs of the college as well as the chief regulations. Read this portion carefully to insure wise and accurate program planning. Section II describes the courses offered in the college with the instructors, hours, and days for each, and it also lists the departmental major requirements. Section III describes the Junior College programs that are prerequisite for students wishing to transfer to various professional schools after two or three years.

While this bulletin gives all information necessary for program planning, it will be necessary to consult the *Class Schedule* published just prior to each quarter to ascertain room numbers and any last-minute changes in offerings.

You will also wish to read the *General Information Bulletin* to gain important information about the University as a whole. And the *New Students' Handbook* describes personnel services and campus activities to help students make the most of university life.

Copies of all bulletins of the University can be obtained at the Information Window in the Administration Building.

Section I

GENERAL INFORMATION

A. INTRODUCTION TO THE COLLEGE

PURPOSE OF THE COLLEGE

The opportunity for a liberal education is a privilege afforded to students who have the necessary ability and ambition. Through the liberal arts, the student is enabled to broaden his interests, develop his abilities, and prepare himself for a life of useful service. It is no accident that the College of Science, Literature, and the Arts is the largest unit of the University, for it offers the kind of broad, stimulating education so richly prized by individuals and so necessary to society.

The college serves four basic purposes, which may be briefly summarized as follows:

General education—There are certain elements of general education which should be the common possession of everyone since they provide the basis for normal living in a free society. Tho they are essentially non-specialized and non-vocational in character, they contribute to a person's total efficiency both when employed and at leisure. These elements of general education should enable the student:

- (1) To understand other persons' ideas through reading and listening, and, in turn, to express his own ideas effectively to others.
- (2) To attain a balanced social and emotional adjustment through an understanding of human behavior, the enjoyment of social relationships, and the experience of working co-operatively with others.
- (3) To improve and maintain his own health and to make intelligent decisions about community health problems.
- (4) To acquire the knowledge and attitudes basic to a satisfying family life.
- (5) To participate as an active, responsible, and informed citizen in the discussion and solution of the social, economic, and political problems of American and international affairs.
- (6) To understand the fundamental discoveries of science in their implications for human welfare and in their influence on the development of thought and institutions; to understand and appreciate the scientific method and to use it in the solution of concrete problems.
- (7) To understand and enjoy literature, art, music, and other cultural activities as an expression of personal and social experience; and, if possible, to participate in some form of creative activity.
- (8) To develop a set of principles for the direction of personal and societal behavior through the recognition and critical examination of values involved in personal and social conduct.
- (9) To choose a socially useful and personally satisfying vocation that will enable him to utilize fully his particular interests and abilities.
- (10) To develop the ability to think critically and constructively. A sound educational program will provide manifold opportunities for reflective thinking in a wide range of intellectual and practical activities. Recognition should therefore be given this objective in conducting each course so that the development of this ability will become an integral and pervasive phase of learning in every field.*

Thus broadly conceived, general education begins in one's early years, is the object of special emphasis during the late high school and early college period, and then should continue throughout the remainder of college and indeed the rest of life. Both curricular offerings and extra-curricular activities should contribute substantially to the general educational growth of the student, particularly when undertaken intelligently with a definite program in mind.

* These objectives of general education are adopted from the Minutes of the University Senate, May, 1944.

Vocational exploration—While it is desirable to identify one's vocational interests as soon as possible, many students postpone a final decision until they complete one or two years of college, and still others find it desirable to change their choice. The College of Science, Literature, and the Arts offers so wide a variety of courses that students may test out several occupational possibilities before making a final decision. For example, a student contemplating medicine may try himself out in basic science courses to discover whether he has the proper abilities and interests, or a prospective businessman may test himself in elementary economics courses, with little loss in time and educational values in case a change of vocation should later appear necessary.

Professional training—A large number of professions rest upon the liberal arts as a foundation. For some professions, the preparation may be procured entirely in the College of Science, Literature, and the Arts, while in other instances the student transfers to a professional school after two, three, or four years of liberal arts background. The opportunities and requirements which apply to each of these professional sequences are described in Sections II and III of this bulletin.

Special interests—Many students wish to develop in college special talents and interests which will add zest and meaning to life even tho unrelated to vocational choice. Such interests may be in the field of art, music, language study, science, literature, public affairs and a wide variety of other subjects.

ORGANIZATION OF THE COLLEGE

To help fulfill the purposes outlined above, the College of Science, Literature, and the Arts is divided into a Junior College and a Senior College. The Junior College embraces the freshman and sophomore classes and is concerned primarily with general education and preprofessional interests, while the Senior College is composed of the junior and senior classes, with accompanying opportunities for specialization. The opportunities and requirements in both of these divisions are explained more fully in later sections of this bulletin.

For purposes of instruction the college is divided into twenty-eight departments covering the three broad areas of the natural sciences, the social sciences, and the humanities.

STUDENT PERSONNEL SERVICES

Faculty counselors—Every student in the college may have the services of a counselor who will be glad to discuss his educational plans, check his registration, and assist him with any other problems which he may have.

(1) Soon after registration, an entering student is given the name of his faculty counselor who will serve as his adviser throughout the year. This faculty member is ready to help with program planning and any other problems the student may bring. If the student cannot see his adviser during posted office hours or if any other difficulty arises, he should bring his questions to the Junior College Counseling Office, 108 Folwell Hall.

Junior College students who plan to enter the following curricula should ask for counselors who are members of the appropriate departments: Art, Education, Journalism, Social Work, Medical and X-Ray Technology, Nursing, Occupational Therapy, Physical Therapy. At any time a student decides upon one of these programs, he should come to 108 Folwell Hall for assignment to a special adviser.

(2) A second year student in the college is ordinarily not assigned to a specific faculty counselor, but he may seek help from the counselors in the Junior College Counseling Office, 108 Folwell Hall.

(3) A third quarter sophomore who is certain of his junior year objectives should consult the Senior College or appropriate professional school.

(4) After being admitted to the Senior College, a student is assigned to a major adviser who helps him plan his work during the junior and senior years. This assignment is usually made in the departmental office of his chosen major though occasionally in the Senior College Office, 146 Physics Building.

Before coming to his counselor, the student should have studied the bulletins carefully for himself, and he should have a tentative program and specific questions in mind. He should also bring with him all records from the Office of Admissions and Records indicating credit already earned at this University or elsewhere.

Students' Work Committee—The Students' Work Committee is the group empowered by the faculty to make exceptions to faculty regulations when those regulations work to the educational disadvantage of a particular student, provided the basic spirit of the regulation is maintained. This committee is charged also with the enforcement and interpretation of faculty regulations. Whenever a student is in doubt about his obligations and rights or whenever he feels that he is suffering a hardship because of a regulation, he should see a representative of the Students' Work Committee, who will be glad to discuss the problem with him. The committee welcomes consultations with students concerning matters which should be brought to the attention of the dean or the faculty at large.

College placement services—Most departments of the college make efforts to place their graduates in fields appropriate to their major programs. In addition, the college operates a placement service in the Senior College office to inform all seniors who register there of the employer requests that come to the attention of college officials. Many employers are seeking college graduates without regard for their major preparation. The general liberal education which is the objective of the liberal arts college is more and more frequently recognized by employers as a desirable background for responsible positions.

While no placement is guaranteed through the college placement service, every effort is made to inform students of employment opportunities. Seniors interested in this service should register in the Senior College Office two quarters before they expect to graduate. Since all employer requests in terms of departmental majors are referred directly to the departments, students should also register with their department.

University personnel services—In addition to faculty counseling within the college, the student is invited to use the several specialized personnel services provided by the University for all students. These university services include the Student Counseling Bureau, the Student Activities Bureau, the Bureau of Loans and Scholarships, the Speech Clinic, the Bureau of Veterans' Affairs, the Housing Bureau, the Adviser for Foreign Students, the Civil Service Employment Office, and the Students' Health Service. If in doubt concerning which service would be most appropriate, the student should consult his faculty counselor or the Junior College Counseling Office for assistance.

THE STUDENT AND THE COLLEGE

Elements of program planning—In the last analysis the student must take the major responsibility for planning his educational program. He must define his personal objectives carefully and determine through a study of the bulletins which offerings and services of the University will contribute most towards the realization of these ends. A program-planning work sheet is available at registration time to assist students with this analysis.

Since the student can take only a few of the hundreds of courses that are available in the University, he should plan his program carefully in accordance with the following general steps:

(1) He should consider his general educational needs as discussed on page 6 of this bulletin and determine which fields, in the light of his previous education and experience, he needs to emphasize in college in order to make him a well-rounded and effective person.

(2) If he has made his vocational choice, he should study the requirements for that field and make sure that he takes the appropriate courses as outlined in this bulletin. If he has not yet made this choice, he might well take exploratory courses in three or four different fields. The services of the Student Counseling Bureau should also prove helpful when making these vocational decisions.

(3) In the light of these general and vocation needs, the student should select those courses which will most efficiently enable him to realize his purposes. He must make sure, of course, that he has the prerequisites for these courses and that they do not conflict in hours. Moreover, if he intends to enter the Senior College, he should begin early to fulfill the group requirements (see below). While there are two plans for fulfilling the group requirements and the student may select the one most suited to his purposes, it must be recognized that these requirements merely insure a reasonable spread of college work. Within the framework of these requirements, the student must still select the courses which will most adequately fulfill his basic needs for general education and for preprofessional work.

(4) He should take note of any college credit already earned, either by examination or by college work taken earlier, in order not to duplicate credit already received.

(5) When the courses have been chosen, they should be listed on the appropriate form at registration time.

Before taking this final step, most students will wish to consult a faculty counselor to discuss with him the choices made and to gain any further suggestions concerning the rich resources of the University. The counselor is particularly useful in reviewing the appropriateness of the program which is planned. The student assumes responsibility for the actual scheduling of courses, insuring that prerequisites have been met, and that there are no conflicts.

Extraclass learning opportunities—The extracurricular life at the University offers an opportunity for further educational development. Many activities provide opportunities for leadership and for the improvement of personal skills which can be obtained in no other way. It is important, therefore, that the student identify himself with some activity to supplement the classroom work. Counselors in the Student Activities Bureau in Eddy Hall and the social program consultants in Rooms 229-230 Coffman Memorial Union, as well as faculty counselors, will be glad to assist in this selection.

B. PROGRAMS OF THE COLLEGE

JUNIOR COLLEGE PROGRAMS FOR ENTERING THE SENIOR COLLEGE

While a student's general education should continue into the Senior College, and indeed throughout life, this phase of his development is especially emphasized in the Junior College. Together with any preprofessional work this will absorb at least two years of study.

Group requirements—In order to assure students a reasonably broad general education adapted to their particular backgrounds and needs, the following group requirements have been established. It will be noted that these requirements contribute to the essential objectives of general education listed on page 6 of this bulletin. The student, with his faculty counselor, has the responsibility of determining which specific courses within these requirements will most effectively round out his development as a person and citizen.

These group requirements should be completed during the two years in Junior College, and the Senior College years should be devoted to fulfilling a major sequence and achieving a still stronger general and liberal education. Under some circumstances, a student may be permitted to complete one or two group requirements after entering the Senior College.

Two plans for fulfilling group requirements are provided and the student may elect the one which better serves his needs. While he may change from one plan to another without any special permission, he must eventually complete all the requirements of one of them. In choosing his plan the student should note carefully any special requirements of the department in which he expects to major.

PLAN I

- A. English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement. All students are required to take a placement test before registering for one of these courses. (See page 59.)
- B. Foreign language, 0 to 20 credits, according to the following schedule:§

<i>Amount Presented for Entrance</i>	<i>Amount Required in Junior College</i>
Four years of one language	None
Three years of one language	5 credits in same language
Two years of one language	10 credits in same language
One year of one language	15 credits in same language
Less than a year of one language	20 credits in one language

- C. Ten credits* in one of the social sciences: anthropology, economics, geography, history, political science, sociology; or 12 credits in Social Science 1-2-3 (Introduction to Social Science)
- D. Ten credits* in one of the natural sciences: astronomy, botany, chemistry, geology (including laboratory), physics (including laboratory), psychology (including laboratory), zoology, or the general studies course in General Biology (Natural Science 7-8-9) or the Physical World (Natural Science 4-5-6); or 15 credits in Natural Science 1-2-3 (Orientation in the Natural Sciences)
- E. Public Health 3 (Personal Health, 2 credits) or equivalent. Students will be excused from this requirement if they pass a certain approved examination covering health information which will be given every quarter by the Student Counseling Bureau at a time and place to be announced in the University's Official Daily Bulletin.¶

PLAN II

- A. English A-B-C (Freshman English, composition portion, 6 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement. All students are required to take a placement test before registering for one of these courses. (See page 59.)
- C. Eighteen credits selected from at least two of the following social science fields: anthropology, economics, geography, history, political science, psychology, sociology, or Social Science 1-2-3 (Introduction to Social Science)
- D. Eighteen credits selected from at least two of the following five natural science fields:
1. Biological science: botany, zoology, Natural Science 7-8-9 (General Biology)
 2. Mathematics: any course above Math. 1
 3. Natural Science 1-2-3 (Orientation in the Natural Sciences)
 4. Physical science: astronomy, chemistry, geology (including laboratory), physics (including laboratory), Natural Science 4-5-6 (The Physical World)
 5. Psychology: any course except Psy. A.
- E. Public Health 3 (Personal Health, 2 credits) or equivalent. Students will be excused from this requirement if they pass a certain approved examination covering health information which will be given every quarter by the Student Counseling Bureau at a time and place to be announced in the University's Official Daily Bulletin.¶

* Or 9 credits in a year course or 9 credits (6 semester credits) of advanced standing.

§ For students who enter this University with advanced standing, the number of credits required may be less than that indicated in this schedule. Any course of 9 credits (6 semester credits) may be substituted for the corresponding 10-credit course here.

¶ Public Health 50 (Public and Personal Health, 3 credits) is an acceptable substitute for Course 3. It is primarily for juniors and seniors but sophomores are sometimes allowed to take it.

F. Eighteen credits selected from at least two of the following eight fields:

1. Art, music
2. Foreign language and literature: any course in Classics, German, Japanese, Linguistics, Romance Languages, Russian, Scandinavian
3. History
4. Humanities 1-2-3; Humanities 11-12-13; Humanities 21-22-23
5. Literature: English A-B-C (Freshman English, literature portion, 9 credits); American literature; English literature
6. Mathematics: any course above Math. 1
7. Philosophy
8. Speech

Work in a department listed in two groups (history, mathematics, or psychology) may be used in satisfying one group requirement but not both.

Prerequisites for major—In planning his program, the student must also take note of the Junior College prerequisite courses which should be taken in preparation for his Senior College departmental or interdepartmental major. The requirements for the various majors in the Senior College are described in Section II of this bulletin. As soon as the student has settled upon his special interest, he should study these requirements carefully in order that he may take the necessary Junior College courses at the proper time.

Credits required—For entrance into the Senior College, a student must earn at least 84 credits (usually he has 90) with a scholarship average of C. Some of these credits may be "quality credits" as explained on page 20.

Applicability of credits from Junior and Senior College courses—While in residence in the Junior College a student ordinarily restricts his work to Junior College courses (numbered 1 to 49) although sophomores may take Senior College courses (numbered 50 and above) by permission of the Students' Work Committee (see page 17.)

If, when entering the Senior College, the student has accumulated more than 90 credits in Junior College courses, the excess may count toward graduation only in case he ultimately takes at least 60 credits of Senior College courses. If the excess is in Senior College courses, they count toward graduation just as though earned after entering the Senior College.

Application for entrance into Senior College—It is important that the student enter the Senior College as soon as he is eligible in order that he may plan his further work with a major adviser and may properly fulfill the residence and other requirements of the Senior College. To encourage his transfer at the proper time, the assistant dean for the Senior College may, upon application, modify the entrance requirements with the understanding that they will be fulfilled later. A student should apply for entrance into the Senior College early in the quarter in which he will complete 84 credits. He should apply directly to the Senior College Office, 146 Physics Building. It is essential that he bring a complete copy of his previous college record.

Transfer students—A person entering the Senior College with advanced standing from some other institution must complete the same credit and group requirements expected of other students and must earn a C average for work done in this University. Honor points are not assigned to credits earned in other institutions or through tests.

SENIOR COLLEGE PROGRAMS LEADING TO THE BACHELOR OF ARTS DEGREE

Major sequence—The Senior College affords the student an opportunity to emphasize some field of special interest while continuing his liberal education. His concentration may be for vocational or avocational purposes and it may be departmental or interdepartmental in character. The student should obtain a reasonable degree of mastery in the field of his choice. To assist him in realizing these objectives the faculty has spe-

cified the following programs, one of which must be completed before the student may receive his B.A. degree.

He must complete a field of concentration, known as a major sequence, composed of Senior College courses; and he must maintain a C average in this sequence. He may elect either (1) a departmental major and minor sequence or (2) an interdepartmental (liberal arts) major or (3) a combination course with a professional school.

(1) *A departmental major* is offered in nearly every department of the college. A description of each major and the specific requirements (usually 27 to 36 credits) are indicated with each department's offering in Section II of this bulletin. The departmental major must be accompanied by a minor sequence of 15 credits or two half-minors of 9 credits each, in Senior College courses. These must be taken in some department or departments other than the student's major department.

Major sequences are offered by the following departments: Anthropology, Architecture, Art, Astronomy, Bacteriology, Biostatistics, Botany, Chemistry, Classics, Economics, English, Geography, Geology and Mineralogy, German, History, Journalism, Library Science, Linguistics and Comparative Philology, Mathematics, Music, Philosophy, Physics, Physiology, Political Science, Psychology, Public Health, Romance Languages, Scandinavian, Sociology and Social Work, Speech, Zoology. Minor sequences may be obtained in all these departments and, in addition, in any other department listed in Section II in which the student can obtain the required number of Senior College credits.

(2) *The interdepartmental, or liberal arts, major*, is designed for students whose special interests cannot be satisfied in a single department and who should have a major tailor-made for their particular needs. To elect this major the student must submit to the assistant dean for the Senior College a plan of study intelligently arranged around a central purpose, and the precise courses included will then be determined in consultation with a major adviser. In general such a program will have more than 60 credits in Senior College courses. An indefinite variety of study programs may be recognized on this basis. A few which have been especially planned are those in International Relations and Area Studies, Preparation for Theological Training, American Studies, and Humanities, described in Section II of this bulletin.

(3) *Combination courses* have been worked out with several professional schools, permitting the student to apply part of his professional work toward a Bachelor's degree from this college. The details of these courses are listed with the respective college programs in Section III of this bulletin. At least one year (45 credits) must be spent in residence in the Senior College. The combinations are:

- (a) Combined course in Arts and Law. Three years of work must be taken in the College of Science, Literature, and the Arts and at least one additional year in the Law School.
- (b) Combined course in Arts and Medicine. The first three years of work are taken in the College of Science, Literature, and the Arts and the fourth year is taken in the Medical School.
- (c) Combined course in Arts and Dentistry. The first three years of work are taken in the College of Science, Literature, and the Arts and two additional years of work must be completed in the School of Dentistry.
- (d) Four-year course leading to the degrees of graduate dental hygienist and bachelor of arts. The first two years are spent in the School of Dentistry and the last two in the College of Science, Literature, and the Arts.

Credits required—The student normally must earn 90 credits with a C average while in the Senior College. He must have a minimum total of 180 credits with a C average for the degree. If a student has transferred from some other college, he must spend the last three quarters before graduation in residence in the Senior College and must earn a minimum of 45 credits in residence in the Senior College.

Program approval—Upon application for admission to the Senior College, each student must plan his program of courses leading to a degree. The program must be listed on an official folder obtainable in the Senior College office and be approved by an adviser appointed by the student's major department. If possible, this form should be completed before the student's first registration in Senior College, but in any case it must be approved and filed before he may register for a second quarter.

When the program has been thus approved by the major adviser and filed in the Senior College office, it becomes an agreement between the college and the student which cannot be changed without the written permission of the adviser and the assistant dean for the Senior College.

Honors—The Bachelor's degree may be awarded *cum laude*, *magna cum laude*, or *summa cum laude*. The special examination, the paper, and the other requirements for graduation with honors are explained on page 20 of this bulletin.

Summary of graduation requirements—Briefly, the requirements for a Bachelor's degree, as discussed in the preceding paragraphs, are as follows:

(1) 180 credits. These may include both course credits and quality credits (see page 20).

(2) Residence in the Senior College. Ordinarily a student is required to complete 90 credit hours while he is in the Senior College. There are two exceptions to this rule when the student has earned more than 90 credits before entering Senior College: (a) if the excess credits are in Senior College courses, they may be applied to the Senior College requirements; (b) if the excess credits are in Junior College courses, they may be applied to the Senior College residence requirements only if the student earns a total of 60 credits in Senior College courses before graduation.

Students in the Senior College may, if their advisers approve, register for Junior College courses as electives.

(3) Group requirements. All students must complete the group requirements under either Plan I or Plan II, preferably before entering the Senior College.

(4) Major (field of concentration) and minors. Students must complete a departmental major and minor (or two half-minors) or an interdepartmental major or a combination course with a professional school.

(5) Quality of work. Students must earn a C average in all work completed, a C average while in Senior College, and a C average in the field of concentration.

PREPROFESSIONAL PROGRAMS IN SCIENCE, LITERATURE, AND THE ARTS

Most professional schools of the University require two or three years in the College of Science, Literature, and the Arts as prerequisites to the beginning of professional training. Accordingly, students are assigned to this college if on their application to the University they indicate an objective of medicine, dentistry, law, education (most curricula), nursing, medical technology, occupational or physical therapy, or business administration.

The purpose of requiring two or more years in the College of Science, Literature, and the Arts before entry into the professional school is twofold. In the first place, professional men and women must be broadly educated. As potential leaders in the community, they must be more than technicians. Through the wide variety of courses offered in this college the future doctor, lawyer, or businessman may obtain the breadth of understanding for discharging his responsibilities both as a professional person and as a useful citizen. Preprofessional students should review carefully the objectives of the college as presented on pages 6-7 of this bulletin.

The second reason for requiring two or more years of preprofessional work is to give the student a foundation of courses upon which he can build the more technical and specialized training of the professional curriculum.

The detailed programs in Science, Literature, and the Arts prerequisite to various professional schools are described in Section III of this bulletin.

THE TWO-YEAR PROGRAM FOR THE ASSOCIATE IN LIBERAL ARTS DEGREE

Some students are not sure whether they can attend school for a four-year degree and consequently they wish to receive some degree at the end of two years as evidence of work accomplished. The A.L.A. degree indicates the successful completion of a program devoted largely to general education. It is given for the two years of college work (90 course credits) outlined below.

Students may choose freely from the many courses offered by the college to freshmen and sophomores. The only restrictions are these: (1) normally the 90 credits must be earned in not more than seven quarters of university residence and quality credits may not be used; (2) the student must meet requirements in English and in at least two of the three group requirements (foreign language, social science, natural science) listed in Plan I on page 10 of this bulletin.

All students who meet these requirements are eligible for the degree, including those who are admitted to the Senior College or the professional schools as well as those who remain in the University for only two years. If a student enters this college with advanced standing, he must spend the last three quarters before graduation in residence and he must earn at least 45 of the required 90 credits in residence.

C. ADMISSION, REGISTRATION, AND COLLEGE REGULATIONS

ADMISSION REQUIREMENTS

Admission to the University—Before a student may enter the College of Science, Literature, and the Arts he must satisfy the requirements for admission to the University. These requirements are stated in the University's *Bulletin of General Information*. During the present emergency, preference is given to residents of Minnesota and adjacent states. Students may be admitted (1) by certificate of graduation from an accredited high school, (2) by examination, or (3) by transfer from another college.

High School graduates—(1) Applicants who are in the top 10 per cent of their high school class will be admitted regardless of the pattern of their high school subjects. Such students must of course meet the regular prerequisites for college subjects they may wish to take.

(2) Other applicants must have a college aptitude rating of at least 40 (the college aptitude rating is the average of the student's rank in his high school graduating class and his rank on the college aptitude test) and, unless the applicant is a veteran, must present the following pattern of subjects:

(a) At least 12 units must have been completed in Grades X, XI, and XII (senior high school) including at least 9 units in standard subjects (Groups A through E).

(b) Either 1 major and 2 minors or preferably 2 majors and 1 minor must be presented including:

A major in Group A, English

A major or a minor in Group D, Mathematics

For veteran students this requirement of the above pattern of high school subjects is waived.

(3) High school graduates who cannot meet the requirements stated above may be considered for admission by taking a series of tests. These tests are objective and are intended to measure aptitude for college work rather than specific information. No special preparation for such tests is practicable.

Definitions—In listing the above requirements, reference was made to admissions groups, units, majors and minors. These terms, which are defined below, apply only to high school work and should not be confused with college groups, majors and minors.

(1) Admissions groups are:

Group A: English

Group B: Foreign Languages (major or minor units must be in one language)

Group C: History and Social Sciences (major must include at least 2 units in history; a minor, at least 1 unit in history)

Group D: Mathematics

Group E: Natural Sciences (for major or minor in this group, not more than 2 half-unit courses may be included)

Group F: Vocational and Miscellaneous Subjects

(2) A unit means a one-year high school subject taken in Grades X, XI, and XII (senior high school).

(3) A major means at least 3 units in one admission group.

(4) A minor means at least 2 units in one admission group.

(5) From either Admission Group B (foreign languages) or Admission Group D (mathematics), *but not from both*, one unit completed in Grade IX may be used toward a major or a minor. If this is done, however, the unit completed in Grade IX may not be counted as part of the minimum of twelve units required from Grades X, XI, and XII nor as part of the units specified in Groups A through E.

Non-high school graduates—With the concurrence of the Minnesota Council of School Executives and the Minnesota High School Principals Association, provision has been made to consider for admission persons who have not graduated from high school but who show evidence of sufficient maturity to do satisfactory work in college. These applicants must present evidence that it would be to their best interest to enroll in the University without completing their high school work.

They may be considered for admission by examination.

Decision will be based on the high school record, test results, and judgments, with respect to maturity and best interest, of the high school principal, the parents, an all-university counselor, the dean of the college, and the dean of admissions and records. All cases where differences of opinion arise will be reviewed by the Board of Admissions.

Students wishing to apply for admission to the University before graduation from high school should arrange to come to the campus for two or three days of testing and counseling several weeks before the beginning of the quarter they plan to enter. At that time application for admission, including high school credits and grades, and letters of recommendation from the principal and parents, should be filed with the Office of Admissions and Records.

Admission to advanced standing—Students who have completed satisfactory work at another recognized college may be admitted with advanced standing. The procedure for such admission is described in the University's *Bulletin of General Information*.

A student entering this college with advanced standing must earn a C average (defined on page 20) on all work in this college. Any student failing to meet this requirement may be excluded from the college at any time after the first quarter. Credits accepted from another institution may be used to satisfy requirements of this college, but only the grades earned in this university will be used in determining honor point ratios. Grades earned in other colleges of this University, except General College, carry the honor points earned in the other college, provided the courses are recognized for credit by this college. Any failures in such recognized courses earned in other colleges of this University are transferred also, and such honor point deficiencies must be made up. General College grades are evaluated like grades from another institution.

Veterans upon entering the college may take G.E.D. tests (see page 23) to determine advanced standing. In addition, veterans may receive college credits for work completed in the service upon presentation of the proper military record to the Office of Admissions and Records.

Examinations for advanced standing—Any student upon first registration at the University may, with the approval of the Students' Work Committee, be allowed without charge to take examinations for advanced standing in subjects in which he declares himself to be prepared. Such examinations must be taken within the first six weeks of residence. For subsequent examinations to gain credit, see page 23.

Adult special students—Mature persons (generally twenty-four years old or older) and persons who have received a Bachelor's degree but wish to take a special and limited course of study may be admitted as adult special students. They are not candidates for a degree and may take any courses in the college for which they have the necessary prerequisites.

Veterans under 24 years old may be accepted as adult special students if they can show that they have sound vocational or educational objectives and the requisite ability.

Such applicants must furnish the information called for on the regular application blank and must obtain the approval of the Students' Work Committee and of the dean of admissions and records. The registration of such students will be under the control of the committee.

An adult special student may not become a candidate for a degree without approval of the college and the Board of Admissions. Adult special students may apply to the dean of admissions and records for regular classification after completing one full year of work (45 credits) with a C average. No advanced standing will be allowed while a student is in the adult special classification.

If the adult special student wishes merely to audit courses he should follow the procedure for auditing described on page 18.

Admission of veterans—Special procedures applying to the admission of veterans are described in detail in the *Bulletin of General Information*. Veterans should read those instructions carefully.

REGISTRATION PROCEDURES

Steps in registration—Registration is the occasion when a student signs for the particular course time he will take for the coming quarter. In general, it consists of putting into operation the long range program he has planned with a member of the faculty. Registration is a logical time to re-evaluate educational goals as well as to review the total range of one's activities outside the classroom. Suggestions for program planning are found on page 8 of this bulletin.

Registration involves several steps, but the procedure is quite simple if one follows carefully and in order the printed instructions which are issued by the college to every student at the time of registration. The general procedures are as follows:

- (1) Entering students must apply for admission or for transfer from another college.
- (2) Once admitted, new students must take a health examination, a speech examination, and certain tests which will assist them later in their educational planning.
- (3) All students plan a long range program of studies with the assistance of a member of the faculty. For those who have done this previously and for whom there has been no change of plans, mere reference to the previously planned program will indicate the particular courses for the next quarter.
- (4) The courses for the next quarter must be indicated on the college registration form. The place of class meeting may be determined from the *Class Schedule* available

at the Information Window, Administration Building, and the closed section information posted in the first floor hallway of Folwell. Except for some sophomores having no adviser the registration blank must be signed by a member of the faculty.

(5) The registration blank must be tallied.

(6) A fee statement must be obtained and fees paid.

Proper registration—A student will receive credit only in those courses for which he is properly registered. Accurate registration is the student's responsibility.

Registration dates—Students are required to register before the final date announced in the university calendar. Only in exceptional circumstances will a student be allowed to register thereafter, and then only upon payment of a special privilege fee.

The fee for the privilege of late registration or late payment of fees is \$2 through the third day of classes; on the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5.

Maximum and minimum credits per quarter—A student must elect at least 13 credits of work each quarter. To take less than that number he must secure permission from the Students' Work Committee. (Note that the U. S. Veterans Administration will pay full compensation only to veterans taking 12 or more credits of work each quarter.)

The maximum number of credits for which a student may register is ordinarily 17. After two quarters of residence a student may register for 18 credits provided he has a scholarship average of 1.5 for the two quarters before registration, and no failure for the quarter immediately preceding registration. Registration for credits in excess of these limits must be approved by the Students' Work Committee.

Junior and Senior College courses—Junior College courses (numbered 1 to 49) are intended primarily for freshmen and sophomores, and Senior College courses (numbered 50 and above) are intended primarily for juniors and seniors. However, it is possible for Junior College students to take advanced courses and for Senior College students to take elementary courses when the arrangement is clearly to the student's educational advantage.

Senior College courses which are *regularly* open to Junior College students who have an average grade of C in the prerequisite courses are so indicated with the course listings. Other courses require the special permission of the Students' Work Committee as explained on page 11. A request for such permission, presented to the Students' Work Committee, will usually be granted if the student has an average grade of at least C in all his work as well as in the prerequisite courses. Courses which carry graduate credit (numbered 100 or above) may not be taken earlier than the third quarter of the student's sophomore year.

Elections of subjects in other colleges or schools—All courses offered in other colleges regularly open to students of this college are listed in Section II of this bulletin. Other courses in other colleges may be taken only with the approval of the college concerned and will carry credit in this college only by permission of the Students' Work Committee.

In the senior year, any student registered in the College of Science, Literature, and the Arts may elect not more than 6 credits per quarter in any other college or school of this University, provided that (1) the dean of the college or school in question and the Students' Work Committee of this college approve the courses as suitable for such election; and (2) no duplication of subjects occurs. Such courses are counted toward the bachelor of arts degree on the same terms as those taken in the College of Science, Literature, and the Arts. Seniors wanting further information regarding these courses, should consult the assistant dean for the Senior College, 146 Physics Building.

Courses in the General Extension Division—A student enrolled in the College of Science, Literature, and the Arts may take courses in the General Extension Division

with permission of the Students' Work Committee, and acceptable credits in those courses may be transferred to this college after the student has completed one year of work in the college.

Credit in the Graduate School—A student lacking not more than nine credits toward graduation may, upon petition, get graduate credit for a limited amount of work taken as an undergraduate. No graduate credit will be given unless the student has made previous arrangements with the Graduate School. Courses taken for graduate credit will not carry credit toward the Bachelor's degree.

With the permission of the assistant dean for the Senior College, an undergraduate lacking not more than six credits toward graduation may be registered in the Graduate School while completing his requirements for the Bachelor's degree.

Change of registration—A student who finds it necessary to change a course after completing registration should fill out a "cancel-add" form, have it signed by his adviser, and present it for tallying. Juniors and seniors must obtain approval of the Senior College office before tallying.

The addition of a new course after the first week of classes must also be approved by the Students' Work Committee and normally it is not permitted. Courses may be cancelled without grade during the first six weeks of classes, although if the total load falls below 13 credits the approval of the Students' Work Committee is required. After the sixth week, cancellation of a course in which the student is failing is recorded as "cancellation with F," if he is passing it is recorded as cancellation with no grade. During the last two weeks before the beginning of quarter examinations, cancellation is not permitted except under most unusual circumstances.

Courses without credit—Any student may register for a course without credit with the permission of the Students' Work Committee. This will entitle him to participate in class activities to an extent agreed upon in advance with the instructor. The arrangement is particularly useful for students wishing to repeat a course as a review. (This arrangement corresponds to the Audit Type II of the U. S. Veterans Administration.)

Audited courses—Auditing a course differs from taking it without credit in that the student may not participate in the activities of the class or take the final examination. Normally only Senior College or adult special students are permitted to audit and then under the following conditions:

(1) He must get an auditor's card at the Senior College office (146 Physics Building) and on it get the written approval of the instructor in charge of the course as well as of the major adviser.

(2) He must present this card to the Recorder and pay the usual fee charged for regular membership in the course.

(3) The total credits registered for must not exceed the maximum of 17 or 18 unless the student has a B average, in which case he may audit an additional three-credit course.

(This arrangement corresponds to the Audit Type I of the U. S. Veterans Administration.)

Repeating a course—A student may repeat, without special permission, a course which he has failed, and both the old and new grades will then stand on his record. He is not required to repeat the course, however, unless it is prerequisite to other courses he wishes to take or is required for graduation. A student may not repeat a course for which he has received credit without the permission of the Students' Work Committee. Such permission is seldom granted.

Repeating a high school course—Ordinarily a student will not receive credit toward graduation from college for a mathematics or language course equivalent to one which he had in high school. If he had more than 9 academic senior high school units and more than a total of 12 senior high school units, however, he may remove the course from

his high school application and thus receive college credit upon repeating it. Arrangements must be made with the Office of Admissions and Records for this purpose.

Credit for courses prerequisite to courses already accredited—A student may not receive credit for a course prerequisite to a course for which he already has credit without permission of the Students' Work Committee.

COLLEGE REGULATIONS

Petition for exemption from a college regulation—The faculty expresses its judgment concerning the best procedures for most students through the college regulations. These are more or less general statements giving the student an opportunity for certain choices. Occasionally a student may find that even with the choices open to him, the regulations work to his educational disadvantage. In this event he should ask for an exception in his case through a petition to the Students' Work Committee of the college. The committee is empowered to make exceptions to the requirements of the curriculum provided the exception is consistent with the spirit of the rule.

Regular petition blanks are available in the offices of the assistant deans. Junior College students should fill them out in duplicate and Senior College students in triplicate, securing the adviser's endorsement if appropriate. If necessary, the student will be given an opportunity to present his case in person. After the committee has taken action, the reply will be mailed to the student's university post-office box in Coffman Memorial Union.

Classification of students—A student with less than 39 credits is a freshman. A student with 39 or more credits is a sophomore until admitted to the Senior College. A student in Senior College who has less than 135 credits is a junior; one with 135 or more credits is a senior.

Grades—Four passing grades, A (highest), B, C, and D (lowest), are given. They are all acceptable for the completion of a single course. Work completed with the grade D is counted toward graduation when combined with work of A or B grade in other courses. The grade C indicates work of the quality required for graduation in most curricula; the grades B and A are given for work of higher degrees of excellence.

The grade I (incomplete) is a temporary grade indicating that a student has a satisfactory record in work completed but for reasons satisfactory to the instructor in charge was unable to complete the work of the course. In case of doubt about a student's eligibility to receive an I, the question should be referred to the Students' Work Committee. A student receiving this grade is required to complete the work of the course within the first thirty days of his next quarter (except summer) in residence. A grade of I (incomplete) which is not removed within the first thirty days of the student's next quarter in residence is marked cancelled without grade. An extension of time may be permitted for removal of an incomplete grade upon the recommendation of the instructor concerned and the approval of the Students' Work Committee. If a petition is presented after the end of the thirty-day period, a restoration of the mark of incomplete may be permitted by the Students' Work Committee upon the recommendation of the instructor, but removal of the incomplete will be considered a special examination for which the special examination fee will be charged. (See Special Fees, page 25.)

The grade F (failure) is given for work which in the opinion of the instructor does not deserve college credit.

Credits—Amount of work is expressed in *credits*. Each credit demands, on the average, three hours a week of a student's time; that is, one recitation with two hours of preparation, or three hours of laboratory work.

Honor points—Quality of work is indicated by *honor points*. Honor points are assigned to the various grades on the assumption that in most curricula a C average is re-

quired for graduation. Each credit with the grade of C carries one honor point; each credit with the grade of B, two honor points; each credit with the grade of A, three honor points. The grades of D and F carry no honor points.

Honor point ratio—A student's scholarship average is defined as the number of earned honor points divided by the total number of credits earned and failed. Scholarship averages of 1, 2, and 3 are called C, B, and A averages, respectively. This definition has been in effect since the beginning of the Summer Session of 1943; but failures in courses taken before June 16, 1943 will not be counted in computing scholarship averages for students in residence in this college since September 1942.

For satisfactory progress in most of the courses of study offered in this college, a student must maintain a scholarship average of at least C. By maintaining a better average in the Junior College, he may be able to reduce the amount of work which he is required to complete. (See paragraph below, Quality Credits.)

Quality credits—As special recognition of superior work, quality credits are awarded on the basis of one credit for every five honor points above a C average. These credits may be applied toward graduation but are not used to satisfy group requirements, major or minor requirements, or specific required courses. Moreover, they may be earned only on work in this University, exclusive of General College.

Quality credits are available to all students on the first 84 credits (course or quality) that are earned. After the first 84 credits, additional quality credits are available only to veterans or to students who have been in continuous residence since the spring term or Summer Session of 1946. These advanced students, who are eligible for quality credits, may earn them only in Senior College courses.

Quality credits may be used to reduce the total number of course credits required for admission to the Senior College. The acceptance of quality credits by the College of Education, the School of Business Administration, the Medical School, the Course Preliminary to Nursing Education and Public Health Nursing, and the Courses in Medical and X-Ray Technology may be determined through reference to Section III of this bulletin.

The following example will illustrate the method of computing quality credits: Suppose a student has 10 course credits of A, 20 of B, 12 of C, 8 of D, and 5 of F. For the A grades, he has earned 30 honor points or 20 above a C average. For the B's, he has earned 20 above a C average. The C's gained him nothing and he lost 13 honor points for his D's and F's. He therefore has $20 + 20 - 13$ or 27 honor points above a C average, yielding a total of 5 quality credits. (Figured another way: If he adds the honor points, he gets 30 for the A grades, 40 for the B's, 12 for the C's, 0 for the D's and 0 for the F's, or a total of 82. This sum diminished by the 55 credits attempted yields a remainder of 27 honor points above a C average. When 27 is divided by 5, 5 quality credits are earned.)

Graduation honors—

General—The degree B.A. or B.S. may be awarded *cum laude*, *magna cum laude*, or *summa cum laude* upon the recommendation of the Committee on Honors.

Honors are awarded only to students who at the time of graduation:*

- (1) Have a scholarship average of B or above in all their work.
- (2) Have earned at least 45 credits in this college after their admission to the Senior College.
- (3) Have a minimum of 60 credits, exclusive of quality credits, in Senior College courses.†

* The attention of students is called to the fact that in the College of Science, Literature, and the Arts honors are awarded upon complete records including the work of the final quarter before graduation. If any student has reason to believe that his record in the final quarter may alter his status as a candidate for higher honors he should immediately consult the chairman of the committee.

† Courses numbered 50 or above.

Students who enter with advanced standing are eligible to become candidates for honors if they earned 60 credits of work in residence before graduation.

Students may be accepted as candidates for honors in courses leading to the B.S. degree or to the B.A. degree in combined arts and professional courses provided they present an equivalent of the work required for graduation with honors in the general course leading to the B.A. degree.

Any student who cannot meet these general requirements in full or the specific requirements below may apply to the Committee on Honors for individual consideration of his case.

Cum laude—Any student who, in addition to satisfying the general requirements above, has an average of B in a minimum of 60 credits in Senior College courses so distributed as to include a minimum of six credits of Senior College work in subjects outside the major and minor fields will be recommended for the degree *cum laude*.

Higher honors—Students wishing to become candidates for the higher honors (*magna cum laude*, *summa cum laude*) must signify their intention not later than the beginning of the third quarter before graduation. Students are admitted as candidates upon the recommendation of the major department and the approval of the Committee on Honors.

Magna cum laude without examination—Any student will normally be recommended by the committee for his degree *magna cum laude* if

- (1) He satisfies the general requirements above, and
- (2) He has a scholarship average of 2.25 or above in all his work and in his Senior College courses averaged separately, and
- (3) He has a percentile rank above 60 in three of the six parts of the Sophomore Culture Test, and a percentile rank above 60 in the total score on this test, and
- (4) His program shows a minimum of six credits of Senior College work in subjects outside the major and minor fields.

Magna cum laude on examination—Any student who satisfies the general requirements but who cannot meet the special requirements immediately preceding may apply to the Committee on Honors to be admitted to an oral examination—described below—for *magna cum laude*, if his general average is 2.15 or above.

Summa cum laude—To be approved as a candidate for graduation *summa cum laude* a student must meet all the requirements for *magna cum laude* without examination and in addition have a scholarship of 2.40 or higher in all his work and in his Senior College courses averaged separately. He must then take an oral examination and submit a paper such as is described below.

The oral examination—The oral examination is not intended to cover the work of any course or group of courses which the student has taken. It is not a test of memory, but of assimilation of culture, and of power to use the knowledge which courses of study have put within the student's reach. Questions may be asked on the content of a course, but only as a point of departure, as the first of a series of questions intended to lead the student toward inferences of his own or toward a comparison of, or correlation of, the content of separate courses.

The examination is intended to test the student's

- (1) Acquaintance with the chief literature and sources of information in his major field.
- (2) Ability to discuss, with intelligence and clear reasoning, questions or problems upon which he has had opportunity to secure the necessary information. Such questions may be new to the student.
- (3) Capacity for self-education as indicated by his curiosity about subjects of general interest and his voluntary attempt to inform himself concerning them.
- (4) Power to command or use the knowledge which his course of study has put within his reach.

The summa paper—The *summa* paper may be of almost any type whatever provided it demonstrates that the candidate has talent or ability which marks him as a distinguished undergraduate. It may consist of creative work in any of the arts—a musical composition, a group of paintings, poems, or stories. It may follow the pattern of the "term paper" in which the student is expected to survey the literature on any special topic, to gather the available information, and to organize and present it in clear, logical form. Or it may consist of the preliminary survey of the literature on a problem in research which the student will pursue in his graduate years. Or it may present the results of research itself.

Whatever it may be, it should show distinction—at the undergraduate level—and should be presented in finished form. If an essay, critical paper, report, or thesis, it must be well written.

Final examination schedule—The all-university final examination schedule is published each quarter in the Official Daily Bulletin well in advance of the examination period. Students are required to take examinations at the scheduled time. However, if the student has a conflict in examinations or if he has three examinations in one day, he should report that fact to the Students' Work Committee for possible adjustment.

Satisfactory progress—A student in this college is expected to make satisfactory progress in the curriculum he has selected. For those who are candidates for a bachelor's degree, this is interpreted to mean a C average.

The cases of students who are not achieving this record are considered by the Students' Work Committee. During the quarter, instructors report to the committee the names of students who are likely to fail, and these students are given an opportunity to discuss their cases with a special counselor to see what may be done to help them. It is always best for a student to see his class instructor or his faculty counselor as soon as he feels himself in difficulty rather than to wait until he has already received a poor grade.

Probation—When the grades at the end of a quarter indicate a very serious situation, the student is placed on probation. This means that he is given very careful attention in an attempt to assist him to discover the reasons for his unsatisfactory work and means for improving his record. In most cases a student will be given at least one quarter in which to show improvement, but the period of probation will not be extended beyond two quarters unless the committee is convinced that the causes of his poor work are beyond his control and will soon disappear.

In addition to general evidence of scholastic weakness, the conditions listed below will always result in a student's being placed on probation:

- (1) At the end of any quarter he is below a passing grade in 50 per cent of his work for that quarter.
- (2) At the end of two quarters' residence he has an average of less than one-half honor point per credit.
- (3) After seven quarters' residence he has an average of less than three-fourths honor points per credit.

A student in the Senior College will be placed on probation if:

- (1) He is below a passing grade in 40 per cent of the work of any one quarter.
- (2) In two quarters' residence he fails to make an average of three-fourths honor point per credit.

A student will be admitted to the Senior College on probation if he is allowed to transfer from the Junior College with an average of less than one honor point per credit.

Exclusion from college—Students excluded from this college shall be recorded as (1) transferred, (2) discontinued, (3) dropped.

(1) *Transferred*—Students whose attitude toward their work is satisfactory, but who evidently are pursuing an inappropriate course, may be transferred to another college at the close of any quarter with the approval of the two colleges concerned.

(2) *Discontinued*—Students who are apparently pursuing the right course, but have been handicapped by conditions over which they have no control (ill health, necessary outside work, etc.) may be required to discontinue their registration until the committee is satisfied that the conditions under which they work are improved. When discontinuance takes place at any time other than the end of the quarter, the courses for which the student is registered are recorded as cancelled without grade.

(3) *Dropped*—Students who have failed to meet the terms of their probation shall be dropped.

Examinations for credit—Credit for material mastered outside of class may be obtained by special examination. A student who believes that he is as well informed in a particular subject as the students successfully completing the course in that subject should apply to the Students' Work Committee for a special examination. If approved, the committee will appoint a special faculty committee to administer the examination. Unless the Students' Work Committee directs otherwise, the fee for such examination will be \$5. Note that entering students may take examinations for advanced standing without payment of a fee, page 16.

Examinations to demonstrate proficiency in prerequisite courses—A student who wishes to carry a course for which he does not have the prerequisite may apply to the Students' Work Committee for permission to take an examination to demonstrate his proficiency in the prerequisite. A satisfactory showing in the examination will admit the student to the course but will not entitle him to credit in the prerequisite course. There is no fee for this examination.

Credit for General Educational Development tests—In recognition of the important educational values attained by many veterans while in service, this college affords veterans the opportunity to secure academic credit by passing General Educational Development tests. These tests are administered by the Student Counseling Bureau and cover the following four fields: (1) Composition; (2) Social Science; (3) Natural Science; (4) Literature.

While a maximum of nine credits will be allowed for each G.E.D. test, this amount will be reduced by the number of college credits already earned in that general field. This regulation insures that credit will be allowed only once for the same learning. A student passing the G.E.D. tests will receive credit for any course he later takes except for the following which are designed to cover the same material: Test 1. Composition 4-5-6 and the composition part of English A-B-C, or Communication 1-2-3; Test 3. Orientation in the Natural Sciences; Test 4. Literature portion of English A-B-C.

Whenever possible, veterans should take these tests before reporting to the college for registration. In any event, they must be taken within two weeks after entering the college, at a time and place announced in the Official Daily Bulletin of the *Minnesota Daily*.

Courses in General Extension Division—A student who takes courses in General Extension Division classes in St. Paul, Minneapolis, or Duluth and wishes to count them toward a Bachelor's degree given by the College of Science, Literature, and the Arts must meet all curricular requirements of this college as stated in this bulletin. That means that:

- (1) Before beginning work in the Senior College with a view to graduation, the student must apply for Senior College standing and be enrolled by the assistant dean for the Senior College.

- (2) He will be assigned to a Senior College adviser and must complete all the Senior College studies under the direction of the adviser.
- (3) He must complete any required work, either of major or minor sequences or of any other nature, in this college if it is not offered in the General Extension Division.

For the adjustment of irregularities in his curriculum the student may get advice from the assistant dean for the Senior College or from his major adviser.

A student who does not conform to these regulations may apply for standing in the Senior College on the same terms as a student transferred from some other institution.

Students who have not taken class work in one of the cities named must meet both curricular and residence requirements.

Class attendance—The student in this college has a very definite responsibility for class attendance. The faculty states that absence without good reason is not legitimate. It delegates the handling of absences to the various departments with the statement that they are to be dealt with under the assumption that each student is expected to do the full work of the class. The various departments have differing ways of treating the matter, and the student should be sure he is familiar with the method of each department in which he is taking work.

Readmission—Students excluded from college are allowed to return only with the permission of the Students' Work Committee.

(1) Students classified as discontinued must present evidence that the conditions which hindered their work have been remedied.

(2) Students who have been dropped may be required to remain out of college until the term of the next year corresponding to that in which they were dropped. They may be required to present satisfactory evidence that they have been employed in an occupation demanding intelligence and responsibility or have successfully pursued studies of an approved character. At the time when the student is dropped the Students' Work Committee will inform him what type of studies will be accepted for readmission.

Students who return under the provision of the preceding paragraphs will be registered on probation. They may be dropped at any time that their work is unsatisfactory to the Students' Work Committee.

The cancellation of a student's registration, of his own accord, will not affect his status as a delinquent student or the terms of his readmission. When a student leaves college he will be notified by the Office of Admissions and Records of his status under these regulations.

Special provisions for veterans—All veterans will wish to read carefully the *Bulletin of General Information* which explains credit policies applying to work done while in service and gives further information concerning the admission and registration of veterans. Students should also consult this bulletin for information concerning General Educational Development tests and the credit which they carry.

EXPLANATIONS OF ABBREVIATIONS AND SYMBOLS

Course numbering—A course is designated by a department name, a number and a letter. It has the same number in whatever quarter it is offered. The quarter is indicated by letter (f, fall; w, winter; s, spring; su, summer).

Examples:

- 1f-2w, a two-quarter course given in the fall and winter.
- 1w-2s, the same course given in the winter and spring.
- 3f,w,s, a one-quarter course given each quarter.

Statement of credits—The number of credits stated for two- and three-quarter courses is the number for the entire course, not the number for each quarter unless so stated.

Class hour schedule—The I hour is from 8:00-8:50, the II hour from 9:00-9:50, and so on throughout the day. The classes on the St. Paul Campus start and end 15 minutes earlier than those on the Minneapolis Campus.

Days and hours—MTWThF indicates that the class meets on Monday, Tuesday, Wednesday, Thursday, and Friday, while MWF means that the class meets on Monday, Wednesday, and Friday only. When a class is designated as meeting I-III MWF it will meet I through III hour, the dash always indicating *through*, while I,III MWF indicates that it meets I and III but not II hour.

When there is more than one section of the same course, the sections are separated by semicolons. Example: I MWF; III TThS; VI MWF. This indicates that there are three sections of the course meeting at 8:00 o'clock MWF, 10:00 o'clock TThS, and 1:00 o'clock MWF respectively.

FEEES

All university fees are subject to modification without notice

Tuition fee (per quarter)	
Residents of Minnesota	\$30.00
Nonresidents	75.00
Credit hour tuition fee (adult special students, auditors, and others carrying less than full work)	
Residents of Minnesota	2.50
Nonresidents	6.25
Incidental fee (per quarter)	11.15
Matriculation deposit† (first quarter only)	5.00
Special fees	
Fees for individual courses are specified in the course announcements (See quarterly <i>Class Schedule</i>)	
Examination for credit (after first 6 weeks in residence)	5.00
Special examination	5.00
Chemistry deposit (required of students registered for courses in chemistry)	5.00
Graduation fee	7.50
Record service fee—50 cents, deducted from each student's deposit account upon refund, for which record certification service is furnished including three copies of record. Additional copies of records	0.50

† Such charges as may be incurred for lockers, library penalties, laboratory breakage, etc., will be deducted from the amount of this deposit and the balance will be refunded by mail upon graduation or after the beginning of the first quarter the student fails to return to the University.

Section II

COURSE OFFERINGS AND MAJOR REQUIREMENTS

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

The courses listed below are scheduled for the academic year 1948-49. Prior to the opening of the fall quarter, a *Class Schedule* will be published giving any corrections and listing the rooms where classes will be held.

This college distinguishes between Junior College courses, intended primarily for freshmen and sophomores, and Senior College courses, intended primarily for juniors and seniors.

Senior College courses numbered between 50-99 appear in the announcement as open to "juniors and seniors" while those numbered between 100-199 are open to "juniors, seniors, and graduates."

Some Senior College courses numbered between 50-99 are usually open to sophomores who have an average grade of at least C in the prerequisite courses. They are listed beneath the heading Senior College Courses in departmental statements in this bulletin. Senior College courses numbered between 100-199 are open to third-quarter sophomores by special permission of the Students' Work Committee. The committee will usually grant such permission to students who have an average grade of at least C in all their work and in the prerequisite courses. Requests for the special permission should be presented to the Junior College office, 106 Folwell Hall.

AMERICAN STUDIES

Majors advisers in the College of Science, Literature, and the Arts—Professors McDowell, Hornberger, and Lowry Nelson; Associate Professors Christensen and Tyler; Assistant Professor Turpie.

A Major in American Studies is offered to students under the general provisions of an interdepartmental (or liberal arts) major as stated on page 12. The Senior College courses which constitute this major will include 48 credits in courses concerned with civilization in the United States as follows:

A. 42 credits in approved courses in the four fields named below, including at least 9 credits in each field: History; Literature; History of Art and Philosophy; Social Sciences. (For a list of approved courses consult the pamphlet entitled "A Program in American Studies" or one of the major advisers.)

B. 6 credits in American Studies 90-91-92.

(Prerequisites: History 20-21-22, "American History," or Humanities 21-22-23, "American Life," or Humanities 71-72-73, "Humanities in the United States.")

Junior College Courses

Hum.21f. American Life I. The growth and the interrelation of nationalism, regionalism, and internationalism in American social thought, literature, and the fine arts, against a background of history (3 cred.; no prereq.) II MWF Bowron; III MWF Turpie; VII MWF Tyler; Ar., ar.

- Hum.22w. American Life II. The growth and interrelation of individualism and democracy, with particular attention to the status of minorities (3 cred.; no prereq.) II MWF Bowron; III MWF Turpie; VII MWF Tyler; Ar., ar.
- Hum.23s. American Life III. The place in American civilization of work, the pursuit of happiness, the good life; their implications and interrelations (3 cred.; no prereq.) II MWF Bowron; III MWF Turpie; VII MWF Tyler; Ar., ar.

Senior College Courses

- Hum.71f-72w-73s. Humanities in the United States. This course is similar to Humanities 21-22-23, except that it is confined to juniors and seniors (9 cred.; jr., sr.; no prereq.) VII MWF Hornberger
- 90f-91w-92s. Proseminar in American Studies. Conferences and readings designed to correlate the students' work in American civilization (6 cred.; sr.; prereq. consent of instructor) VIII-IX M Smith

For Graduate Students Only

- 210f-211w-212s. Seminar in American Studies. An over-view of American civilization in the terms of the various departments which cooperate in the program in American Studies (9 cred.; grad.; prereq. consent of instructor) IX-X W Hornberger (f), Smith (w,s)

ANATOMY (HUMAN)

MEDICAL SCHOOL

For complete list of courses, see the *Bulletin of the Medical School*.

Students in this college may elect courses in human anatomy other than Course 3 or 4 (see the *Bulletin of the Medical School*) only by arrangement with the head of the Department of Anatomy.

- 3f. Elementary Anatomy (4 cred.; primarily for 3-yr. nurses (Ext. Div.) and dental hygienists; no prereq.) Lect. and quiz I TThS, lab. and rec. VIII-IX T; VIII-IX Th Frantz
- 4s. Elementary Anatomy (5 cred.; primarily for 5-yr. nurses and medical technologists; prereq. Zool. 1-2-3 or 14-15) Lect. and quiz I MTWF, lab. and rec. VIII-IX T Frantz; VIII-IX Th Frantz

ANTHROPOLOGY

Major adviser in the College of Science, Literature, and the Arts—Professor Wallis.

Major sequence in the College of Science, Literature, and the Arts—At least twenty-seven credits selected from the following: Anthropology courses numbered 80 or above, Zoology 83, 170, 171.

(Prerequisites: Courses 40 and 42, with fifteen additional credits from either the social or biological sciences.)

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Junior College Courses

- 40f.* Introduction to Anthropology. Man's physical and cultural development; the nature and significance of race differences; ways of life in primitive society; applications of anthropology to modern life (5 cred.; no prereq.) VI MTWThF Greenberg
- 40s.* Introduction to Anthropology (See 40f) VII MTWThF Wallis
- 42w. Introduction to World Ethnology. Man's first appearance in Old and New Worlds; earliest stages in the development of civilization; discovery and invention, the formation of cultural patterns, and the spread and adaptation of culture to various environments in Asia, Africa, the South Seas, and among the American Indians; changes in the arts, beliefs, and institutions of primitive communities as observed in recent times (5 cred.; no prereq.) VI MTWThF Spencer

* Students who have taken the old course Anthropology 41 (Introduction to Anthropology) may not receive credit for 40.

Senior College Courses

Courses 54, 56, 80, 81 are open to sophomores who have a grade of at least C in Courses 40, the old course 41, or 42. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 54f. Social Organization. An analysis and survey of forms of social life (3 cred.; jr., sr.; no prereq.) I MWF Wallis
- 56f. Primitive Science. The beliefs and knowledge of primitive man (3 cred.; jr., sr.; no prereq.) VII MWF Wallis
- 80s. The American Indian. A survey of native cultures of the New World. Physical and cultural characteristics (3 cred.; jr., sr.; no prereq.) II TThS Wallis
- 81w. Archeology of North America. Prehistory of the region, with special attention to northern Mexico and the United States (3 cred.; jr., sr.; no prereq.) III MWF Wilford
105. *Elements of Language*. A survey of speech sounds followed by practice in phonetic recording. Analysis of phonetic patterns in language. Practical work in dictation of Chippewa, Dakota, Finnish, and other languages (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
106. *European Prehistory* (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 109s. General Linguistics. Discussion of problems relating to the phonetic patterning, morphology, syntax, and semantics of language; special attention will be directed to the varieties of language structures found outside of our own speech family (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language) I TThS Greenberg
- 110f. Physical Anthropology. Man's place in the animal kingdom. Comparison of man's structure with that of the anthropoid apes; types of prehistoric men; anthropometry (3 cred.; jr., sr., grad.; no prereq.) III MWF Wilford
- 111w. Advanced Physical Anthropology. Sex differences; asymmetry; variability; statistical procedures; problems of race (3 cred.; jr., sr., grad.; prereq. 110, or Zool. 22 or 175, or a course in human anatomy, or permission of instructor) II MWF Wallis
116. *Indians of the Southwest*. The pueblo dwellers, Navaho, Apache, and other aborigines of New Mexico and Arizona. The ancient civilizations of the region. (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
117. *Anthropology and Contemporary Problems*. Significance of the comparative study of human societies for understanding contemporary problems; among the subjects considered are education, minorities, crime, mental hygiene, race, and international organization (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
118. *Indian Civilizations of Mexico and Peru* (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 119w. The Contact of Cultures. An examination of the ways in which customs change, especially as exemplified by the impact of Western civilization on native societies (3 cred.; jr., sr., grad.; no prereq.) IV MWF Wallis
- 120f. Indians of the Plains. The aboriginal inhabitants of the prairies and plains. The tribes which lived between the Upper Mississippi and the Rockies, from the forests of western Canada to Texas (3 cred.; jr., sr., grad.; no prereq.) II MWF Spencer
- 122f-123w-124s. Problems in Anthropology (Cred. ar.; jr., sr., grad.; prereq. permission of instructor) Ar. Ar. Wallis, Greenberg, Wilford, Spencer
129. *Primitive Economics*—Varied systems of making a living in preliterate groups. Economy of hunting and fishing tribes, primitive agriculturists, and simple herders. Relations between habitat, technology, social organization, and goals and attitudes as focused in the area of economic life (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 130f. The Pre-Muslim Cultures of the Near East. The prehistoric and historic cultures of the Near East before the appearance of Islam, with emphasis on Egyptian culture from Neolithic to Byzantine times. (3 cred.; jr., sr., grad.; no prereq.) III TThS Greenberg
- 131w. The Growth of Islam. Mohammed and the founding of Islam. Islamic culture as an intermediary between (1) classical and the ancient oriental civilizations and (2) medieval Europe. Legal, political, and theological developments in Islam. (3 cred.; jr., sr., grad.; no prereq.) III TThS Greenberg
- 132s. The Contemporary Near East. The basic Mohammedan institutions in Contemporary cultures of the Near East. Religious and political currents in present day Islam and their repercussions in world politics. (3 cred.; jr., sr., grad.; no prereq.) III TThS Greenberg
- 133w. Races and Cultures of China (3 cred.; jr., sr., grad.; no prereq.) I MWF Spencer
- 134s. Races and Cultures of Japan. The growth of native civilization in Japan (3 cred.; jr., sr., grad.; no prereq.) I MWF Spencer

140. § Field Trip in Archeology—Excavations of prehistoric mounds and village sites in the state of Minnesota (1 to 8 cred.; jr., sr., grad.; prereq. male students only, permission of instructor required) Ar. Ar. Wilford
- 150-151-152. *Selected Readings in Ancient History*. Early cultures of the Mediterranean Basin (9 cred.; sr., grad.; prereq. consent of instructor) (*Not offered*)
- 161w. Primitive Religion. Beliefs and practices in primitive religion. The role of the sacred and the supernatural. Beliefs in the life after death (3 cred.; jr., sr., grad.; no prereq.) VII MWF Wallis
162. *Peoples of Negro Africa*. Physical types, social, political, and economic phases of the cultures of Negro Africa (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 163f. Ethnology of India. A survey of the primitive tribes, Hindu caste society, and the Mohammedan communities in India (3 cred.; jr., sr., grad.; no prereq.) IV TThS Spencer
- 165f. Psychological Phases of Culture—The impact of cultural tradition on human experience. The significance of culture patterns in the structure and functioning of human experience. (3 cred.; jr., sr., grad.; no prereq.) IV MWF Spencer
- 166f. History of Anthropological Theory and Method. A review of the development of anthropology from early times to the present day. Schools of anthropological thought and various approaches to the data of anthropology (3 cred.; jr., sr., grad.; no prereq.) II TThS Wallis
167. *Primitive Mythology*. Plots and motives in folklore and mythology. Mythology as a reflection of culture and interests. Explanatory tales (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 169s. Peoples of the South Seas. A survey of the native cultures of the Pacific Islands (3 cred.; jr., sr., grad.; no prereq.) III MWF Spencer
170. *Primitive Art*. The role of esthetics in primitive life, the spread of art styles, symbolism. The graphic and plastic arts and the place of the artist. Music, drama, the dance, in primitive societies (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 171s. Peoples of Northern Asia. The ethnology of the simpler cultures of northern Asia, including the so-called paleo-Asiatic peoples of eastern and central Siberia, the Sincized tribes, and the Turkish-speaking tribes of central Asia (3 cred.; jr., sr., grad.; no prereq.) IV TThS Spencer
172. *Indians of South America*. An ethnographic survey of South American Indians, with a brief account of prehistory in the various areas and of recent acculturation under Spanish or Portuguese influences. Topics include: race, language, utilization of environment, tribal organization, social and religious aspects. There will be brief mention of the higher civilizations of Mexico, Central America, and Peru (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)

For Graduate Students Only

- 204f-205w-206s. Seminar in Anthropology (3 cred. per qtr.; grad.) Ar. Wallis, Greenberg, Wilford

ARCHITECTURE
INSTITUTE OF TECHNOLOGY

Major adviser in Architecture in the College of Science, Literature, and the Arts—
Professor Rhodes Robertson.

Major sequence in the College of Science, Literature, and the Arts—Courses AD-I, AD-II, 51-52-53, 57, and Art 60, 61, 62.

(Prerequisites: High school or college equivalent of Math. 1, Higher Algebra, and Solid Geometry; Physics 1-2-3; Arch. 40[§]; and Art 20, 21.

This sequence is intended for:

1. Students who for cultural or vocational reasons may want a certain degree of specialization in architecture.
2. Students preparing for further training in such special fields as city planning, landscape architecture, and interior or industrial design.
3. Students taking the six-year combined course in Arts and Architecture leading to both the liberal arts and professional architectural degrees. (See also *General Information Bulletin*.) Such students should include, in addition to the above courses, Math. 6-7-30, Math. and Mech. 91-92-93, C.E. 38-39-41, and Chem. 1-2 or 6-7 if they had no chemistry in high school.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

NOTE—Consult the *Bulletin of the Institute of Technology* for program of hours, days and instructors, and for additional courses.

§ This course may be taken for credit only once.

¶ Course 40 may be postponed until the student's junior year, if approved by adviser.

Junior College Courses

- Arch.1f,w. Introduction to Architecture. Discussions and problems to inform prospective students regarding the nature of architecture as an art and a profession (1 cred.; open only to students intending to major in architecture; prereq. approval of major adviser)
- Arch.40f. Graphic Representation. Projections, shades and shadows, perspective and other processes involved in architectural drawing (6 cred.; 3rd qtr. soph.; prereq. solid geometry and approval of major adviser)

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- Arch.51f-52w-53s.† History of Architecture. Significant architecture of the past, with particular reference to the geographic, social, and technical influences which produced it (12 cred.; jr., sr.; no prereq.)
- Arch.57f. Building Materials and Methods. Part I. Principles, methods, and materials involved in the standard types of building construction (4 cred.; jr., sr.; no prereq.)
- Arch.61f-62w-63s. Tutorial Work in History of Architecture (6 cred.; jr., sr.; prereq. 53)
- Arch.104f. City Planning. General survey of the economic, governmental, social, and technical phases of city planning and group housing (The same as Economics 111, Political Science 123, and Sociology 104) (3 cred., sr., grad.; no prereq.)
- AD-Iw,s.††§ Architectural Design, Grade I (12 cred., normally 6 cred. per qtr.; jr., sr.; prereq. 40)
- AD-II f,w,s.††§ Architectural Design, Grade II (18 cred., normally 6 cred. per qtr.; jr., sr.; prereq. AD-I)

ART

Major advisers for all courses in Art in the College of Science, Literature, and the Arts—Professor Arnason; Assistant Professors Morris, Patrick, and Torbert.

The principal objective of the Department of Art is to contribute to the general education of all students at the University of Minnesota. It will be concerned primarily with the training of "consumers" of art rather than producers. With this end in view all courses in both history and practice will lay particular stress on the problems and needs of the nonprofessional student interested in acquiring some knowledge of the theory and practice of art within the framework of a liberal education.

The Department of Art is not a professional school. It makes no pretense of offering intensive professional training in painting, industrial design, or commercial art. For those students interested in acquiring a liberal education and then proceeding to a professional school, it will offer a sound series of preprofessional courses, intended to provide basic technical skills and principles of design, as well as sufficient background in history and criticism to enable the student to enter any professional school at an advanced level and to complete his training there within a minimum of time.

Note: The new Department of Art offers courses formerly given in the Department of Fine Arts (S.L.&A.), the Departments of Art Education, Architecture, and Drawing and Descriptive Geometry. A new course numbering system is here adopted for the first time and all courses should be registered for as "Art" rather than Architecture, Art Education, Drawing, or Fine Arts. To prevent confusion in the present catalog, the former course numbering is given in each case in parentheses opposite the new number.

Major sequences in the College of Science, Literature, and the Arts—

In the Department of Art it is possible to major in any one of four general areas—History of Art, Painting, Design, and Sculpture and Crafts.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

† A fee of \$1 per quarter is charged for this course.

†† A fee of \$2 per quarter is charged for this course.

§ Completion of this course is dependent on achievement rather than time. Students will continue their registration until the course is completed and a mark reported. The number of credits earned per quarter may be larger or smaller than the amount indicated as normal.

The general requirements for each of these sequences are indicated below. Certain further combinations such as, for instance, sequences including courses in Design and Crafts, Painting and Sculpture, or History and Painting, may be arranged in conferences with the advisers for the Department of Art. Art 10, Photography, is strongly recommended for all majors in the department.

A. History and Criticism of Art. Prerequisites: Art 1, Introduction to Art, Art 4 and 5, General Design or Art 20, 21, Drawing and Painting I. Requirements: 33 credits in History of Art courses numbered above 50. A reading knowledge of at least one foreign language.

Minors in the areas of history, literature, or languages are particularly recommended for majors in History of Art.

B. Painting. Prerequisites: Art 1, Introduction to Art, Art 4 and 5, General Design, Art 20, 21, Drawing and Painting I. Requirements: Art 50, 51, 52, Pictorial Composition and 15 credits in other Senior College courses in Drawing and Painting, and 9 credits in Senior College courses in History of Art.

C. Design. Prerequisites: Art 1, Introduction to Art, Art 4 and 5, General Design, Art 20, 21, Drawing and Painting I. Requirements: 24 credits in Senior College courses in Design and 9 credits in Senior College courses in History of Art. Strongly recommended are further courses in Drawing and Painting and Art 43, 44, 45, General Crafts: Materials and Techniques.

D. Sculpture and Crafts. Prerequisites: Art 1, Introduction to Art, Art 4 and 5, General Design, Art 20, 21, Drawing and Painting I, Art 43, 44, 45, General Crafts: Materials and Techniques. Requirements: 18 credits in Senior College courses in Sculpture and Crafts and 9 credits in Senior College courses in History of Art.

Junior College Courses

- Art 1f,w,s,‡ Introduction to Art (Formerly F.A. 1, 2, 3). A lecture and work shop course introducing the student to the various problems involved in the first approaches to objects of art. Examples selected from the great works of painting, sculpture, and architecture will be used to illustrate principles of design. The student will be introduced through the work shop technique to problems arising from the natures of materials, both two dimensional and three dimensional (4 cred.; no prereq.) Lect. III MWF Arnason and others; Work Shop: I-II T; III-IV T; V-VI T; VII-VIII T; IX-X T; I-II Th; III-IV Th; V-VI Th; VII-VIII Th; IX-X Th
- Art 4f,w,s,‡5f,w,s,‡ General Design (Formerly ArtEd. 1-2-3). An awareness of organic design in the contemporary environment is developed through analysis of the structural basis of pictorial, decorative, and industrial design simultaneously with individual creative and practical problems (3 cred. per qtr.; prereq. Art 1 or equiv., or consent of instructor) Art 4: I-II MWF Torbert; VI-VII MWF Torbert; III-IV TThS Torbert. Art 5: I-II TThS Torbert; VI-VIII TTh Ar.
- Art 10f,w,s,‡‡‡ Photography (Formerly F.A. 10). Fundamental principles of photography. The use of cameras, developing, printing, and other elementary techniques (The same as Journalism 10) (3 cred.; soph., jr., sr.; no prereq.) Lect. V T; lab. VI-VII MW; I-II WF Nestler
- Art 20f,w,s,‡21f,w,s,‡ Drawing and Painting I (Formerly DP-I, ArtEd. 4, 6, 8, and Drawing 41, 42, 43). Introduction to materials and techniques; still life, figure, and landscape. (2 cred. per qtr.; prereq. Art 1, or equiv. or consent of instructor) Art 20: The following sections are for majors in Art, Art Education, or Architecture: I-II MF Quirt; III-IV MF Johnson, Parker; VI-VII MF Doseff, Johnson; VIII-IX MF Doseff, Young; I-II MW Turner; III-IV MW Doseff; II-III TTh Morris, Whiteside; IV-V TTh Socha; VI-VII TTh Rollins, Socha; III-IV WF Young. The following sections are for students not majoring in Art, Art Education or Architecture: I-II MF Whiteside; III-IV MF Ar.; VI-VII MF Ar.; VIII-IX MF Parker; II-III TTh Parker; Art 21: I-II MF Young; III-IV MF Whiteside; I-II MW Socha; III-IV MW Socha; III-IV TTh Ar.
- Art 33f,‡‡34w,‡‡35s,‡‡ Sculpture I: Modeling (Formerly M-I). (3 cred. per qtr.; prereq. Art 1 or equiv. or consent of instructor) VI-VIII TTh Rood

‡ A fee of \$1 is charged for this course.

‡‡ A fee of \$2 is charged for this course.

‡‡‡ A fee of \$5 is charged for this course.

Art 43f,w,s,††44f,w,s,††45f,w,s,†† General Crafts: Materials and Techniques (Formerly ArtEd. 31, 32, 33, 34). Studies in the natures of materials, exercises in three dimensional design. Work in metal, wood, clay, leather, plastics, etc. (3 cred. per qtr.; prereq. Art 1, or equiv., or consent of instructor) Art 43: I-II MWF Ar.; III-IV MWF Berglund; VI-VII MWF Berglund. Art 44: I-II MWF Morton; III-IV MWF Morton. Art 45: VI-VII MWF Morton

Senior College Courses

HISTORY OF ART*

- Art 56f,57w,58s. Art in the Americas (Formerly F.A. 57, 58, 59). A comprehensive study of painting, sculpture, and architecture in North and South America, treating the important pre-Columbian traditions, the development of the various colonial styles and the significant national schools of the nineteenth century. In the spring quarter the important schools of modern painting and architecture will be covered, particularly in Mexico and the United States (3 cred. per qtr.; jr., sr.; prereq. Art 1, or consent of instructor) VI MWF Ar.
- Art 66f. Modern Painting and Sculpture: Classicism and Romanticism (Formerly F.A. 71). The development of sculpture and painting from the period of the French Revolution to about 1850 in France, Germany, Spain, and England, with introductions to parallel developments in the United States (3 cred.; jr., sr.; prereq. Art 1, or consent of instructor) VII MWF Patrick
- Art 67w. Modern Painting and Sculpture: Realism and Impressionism (Formerly F.A. 72). Painting and sculpture in Europe during the second half of the nineteenth century with particular emphasis on the various schools of Paris, their influence and parallels in England, Germany, and the United States (3 cred.; jr., sr.; prereq. Art 1, or consent of instructor) VII MWF Patrick
- Art 68s. Modern Painting and Sculpture: Contemporary Art in Europe and America (Formerly F.A. 73). Development of painting in Europe from Post-impressionism (Cézanne, Van Gogh, Gauguin) through contemporary trends, together with related movements in the United States. (3 cred.; jr., sr.; prereq. Art 1, or consent of instructor) VII MWF Patrick
- Art 106f. Art in Egypt, the Near East, and Greece (Formerly F.A. 141, 142). The development of architecture, painting, sculpture, and the minor arts of vase painting, mosaic, and metal work in Egypt, Mesopotamia (Hittite, Sumerian, Babylonian, and Assyrian), and Persia. Study of the various Aegean styles (Minoan, Helladic) and particularly the evolution of Greek architecture and sculpture from the archaic through the Classic and Hellenistic period (3 cred.; jr., sr., grad.; prereq. 9 cred. in Art, or 9 cred. in history or literature with consent of instructor) II MWF Ar.
- Art 107w. Roman and Byzantine Art (Formerly F.A. 143, 151). Architecture, painting, and sculpture, from the early Etruscan period through Rome of the Republic and Imperial epochs and the period of Constantine. The rise of Christianity and its expression in early Christian and Byzantine Art (3 cred.; jr., sr., grad.; prereq. 9 cred. in Art, or 9 cred. in history or literature with consent of instructor) II MWF Ar.
- Art 108s. Romanesque and Gothic Art and Architecture (Formerly F.A. 152, 153). A study of architecture, sculpture, and related religious art as developed in the great monastic centers of Europe, particularly in the eleventh and twelfth centuries. The important cathedrals of Europe, both from the standpoint of the development of the Gothic style in architecture, sculpture, and painting, and as expressions of medieval culture (3 cred.; jr., sr., grad.; prereq. same as Art 106) II MWF Ar.
- Art 116f. Italian Painting and Sculpture of the Early Renaissance (Formerly F.A. 154). The development of painting and sculpture in Italy from Giotto and Duccio to Donatello, Botticelli, and the Bellinis (3 cred.; jr., sr., grad.; prereq. 9 cred. in Art or 9 cred. in history or literature with consent of instructor) III MWF Ar.
- Art 117w. Masters of the High Renaissance (Formerly F.A. 155). A study of the sources and the important works of Leonardo da Vinci, Raphael, Michelangelo, Titian, and their followers, with a survey of their influences on the Renaissance art of Spain, France, and Flanders (3 cred.; jr., sr., grad.; prereq. same as Art 116) III MWF Ar.
- Art 118s. Renaissance Art in Northern Europe (Formerly F.A. 156). The development of painting and sculpture in Flanders, France, and Germany from the Van Eycks to Albrecht Dürer and Hans Holbein. Particular emphasis will be given to the evolution of the graphic arts in the fifteenth century, their influence and contribution to the culture of the Renaissance (3 cred.; jr., sr., grad.; prereq. same as Art 116) III MWF Ar.
- Art 126f. Baroque Art: The Classic Tradition (Formerly F.A. 157). The development of painting from the Late Renaissance in Italy, through Peter Paul Rubens in Flanders, and the classic period of French painting (Poussin, Lorraine) (3 cred.; jr., sr., grad.; prereq. 9 cred. in History of Art, or 9 cred. in history or literature with consent of instructor) IV MWF Ar.

* Architecture 51, 52, 53 History of Architecture, and Architecture 61, 62, 63 Tutorial Work may, with consent of adviser, be taken as part of major sequence in History of Art.

†† A fee of \$2 is charged for this course.

- Art 127w. Baroque Art in Spain (Formerly F.A. 158). Painting during the Golden Age of Spanish culture with particular emphasis on the painting of El Greco and Velasquez (3 cred.; jr., sr., grad.; prereq. same as Art 126) IV MWF Ar.
- Art 128s. Baroque Art in Holland (Formerly F.A. 159). Painting and the graphic arts in the Low Countries during the seventeenth century, with special study of Rembrandt, Frans Hals, and the minor masters of the Dutch schools (3 cred.; jr., sr., grad.; prereq. same as Art 126) IV MWF Ar.
- Art 146f. Art in the United States: The Origins. Painting, sculpture, and architecture from the beginnings through the Colonial and Revolutionary periods. Relations with England and the European continent. Copley, Stuart, West, and their followers (3 cred.; jr., sr., grad.; prereq. 9 cred. in History of Art or 9 credits in history or literature with consent of instructor) VIII MWF Patrick
- Art 147w. Art in the United States: The Nineteenth Century. The rise of a national style in landscape and realistic genre. Homer, Eakins, Ryder, and their influence. Impressionism and relations with Europe after the Civil War. The beginnings of modern architecture (3 cred.; jr., sr., grad.; prereq. same as Art 146) VIII MWF Patrick
- Art 148s. Art in the United States: The Contemporary Movements. The Armory Show and development of modern realism, expressionism, and abstraction. Frank Lloyd Wright and modern American architecture (3 cred.; jr., sr., grad.; prereq. same as Art 146) VIII MWF Patrick

For Graduate Students Only

- Art 206f,207w,208s. Seminar: Modern European Art (3 cred. per quarter; prereq. 18 cred. in Senior College courses in History of Art or consent of instructor) Ar. Ar. Arnason and staff.
- Art 216f,217w,218s. Seminar: American Art (Formerly F.A. 201, 202, 203) (3 cred. per qtr.; prereq. 18 cred. in Senior College courses in History of Art or consent of instructor) Ar. Ar. Arnason and staff
- Art 236f,237w,238s. Seminar: Special Problems in Art History and Criticism (Cred. ar.; prereq. consent of instructor) Ar. Ar. Arnason and staff

DRAWING AND PAINTING

- Art 50f,†51w,†52s.† Pictorial Composition (Formerly ArtEd. 23). A basic course which approaches painting specifically in terms of the problems involved in organization of the picture space and the nature of the artist's materials. Experiments will be carried out in all media (2 cred. per qtr.; prereq. Art 20, 21 or equiv. and consent of instructor) V-VI TTh Quirt, Morris
- Art 60f,†61w,†62s.† Drawing and Painting II (Formerly D.P.-II, ArtEd. 24A,B,C, 26A,B,C, 28A,B,C, Draw. 81, 82, 83). Advanced drawing, water color, gouache, oil (2 cred. per qtr.; prereq. Art 20, 21 or equiv. or consent of instructor) I-II TTh Quirt, Rollins; III-IV TTh Ar.; VI-VII TTh Ar.; VIII-IX TTh Morris; II-III WS Turner; VI-VII MF Turner, Young; I-II MW Doseff; I-IV S Ar.
- Art 70f,†71w,†72s.† Drawing and Painting III: Oil (Formerly D.P.-III, Draw. 86, 87, ArtEd. 61, 62, 63) (2 cred. per qtr.; prereq. Art 60, 61, 62 or Pictorial Composition or equiv., or consent of instructor) I-IV S Rollins; I-II TTh Ar.; III-IV TTh Rollins; II-III MW Young; I-II MW Turner; V-VI MW Turner
- Art 80f,†81w,†82s.† Drawing and Painting IV (Formerly D.P.-IV). Problems in figure, portrait, landscape, composition (2 cred. per qtr.; prereq. consent of instructor) Ar. Ar.
- Art 90f,†91w,†92s.† Print Processes (Formerly ArtEd. 68A,B,C). Block prints, silkscreen, etching, drypoint, engraving, lithography, etc. (2 cred. per qtr.; prereq. 6 cred. in drawing and painting or equiv., or consent of instructor) Ar. Ar.
- Art 150f,†151w,†152s.† Drawing and Painting V (Formerly D.P.-V., ArtEd. 124E). Special problems (Cred. ar.; prereq. consent of instructor) Ar. Ar.

For Graduate Students Only

- Art 200f,†201w,†202s.† Advanced Problems (Cred. ar.; prereq. consent of instructor)

DESIGN

- Art 53f,w,s,†54w,s,†55s.† Industrial Design I (Formerly ArtEd. 51) (3 cred. per qtr.; prereq. 6 cred. General Design and 2 cred. Drawing or equiv., or consent of instructor) I-II TThS Torbert
- Art 63f,†64w,†65s.† Commercial Design I (Formerly ArtEd. 50A,B,C) (3 cred. per qtr.; prereq. 6 cred. General Design and 6 cred. Drawing and Painting, or equiv. or consent of instructor) III-IV MWF Ar. Art 64w (Formerly Dr. and Des. Geom. 64 "Graphic Arts") (Open to Journalism students and advertising majors only) VII-VIII MWF Torbert
- Art 73f,†74w,†75s.† Presentation Techniques (Formerly ArtEd. 66A,B, 67A,B,C). For students of industrial design, advertising, and fashion illustration (3 cred. per qtr.; prereq. 12 cred. Drawing and Painting, or consent of instructor) Ar. Ar.

† A fee of \$1 is charged for this course.

Art 133f, †134w, †135s. † Advanced Design (Formerly ArtEd. 150, 151). An advanced course in organic design based on the execution of practical problems leading to a wider understanding of art in commerce and industry (3 cred. per qtr.; jr., sr., grad.; prereq. consent of instructor) VIII-X T Lien

Art 153, †154, †155. † *Industrial Design II* (Cred. ar.; prereq. *Industrial Design I* and consent of instructor) (*Not offered*)

SCULPTURE AND CRAFTS

Art 83f, ††84w, ††85s. †† Sculpture II (Formerly Art Ed. 70A,B,C). Direct carving in wood and stone (3 cred. per qtr.; prereq. consent of instructor) I-II TThS Rood; III-IV TThS Rood

Art 87f, ††88w, ††89s. †† Textile Design: Weaving (Formerly ArtEd. 76, 77, 78) (3 cred. per qtr.; prereq. consent of instructor) VII-VIII MWF Berglund

Art 93f, ††94w, ††95s. †† Ceramics I (Formerly ArtEd. 73A,B,C) (3 cred. per qtr.; prereq. 6 cred. Design or consent of instructor) I-II TThS; III-IV TThS; VI-VIII TTh Lupori

Art 97s. †† Textile Design: Printing Processes. (Formerly ArtEd. 79). Tie-dye, batik, stenciling, block-printing, etc. (3 cred.; prereq. consent of instructor) III-IV TThS Berglund

Art 183f, ††184w, ††185s. †† Sculpture III (Formerly ArtEd. 170E). Special Problems (3 cred. per qtr.; prereq. consent of instructor) Ar. Ar. Rood

Art 193f, ††194w, ††195s. †† Ceramics II (Formerly ArtEd. 173E). Special Problems (3 cred. per qtr.; prereq. consent of instructor) Ar. Ar. Lupori

ASTRONOMY

Major adviser in the College of Science, Literature, and the Arts—Professor Luyten.

Major sequence in the College of Science, Literature, and the Arts—Courses 51-52-53, 101, and Mathematics 50, 51, 105.

(Prerequisites: Mathematics 6-7, or Mathematics 6 and at least five credits in chemistry, geology, or physics.)

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Junior College Courses

11f,s* Descriptive Astronomy. A brief survey of what is known about the sun, the moon, the planets and their motions, followed by a description of the constellations and a summary of our knowledge of the stellar universe to which the sun belongs. This course is completely non-mathematical (5 cred.; no prereq.) IV MTWF and one evening a week with the telescope, weather permitting. Luyten

20w. † Astronomy for Celestial Navigation. Deals with the principles and the practice of navigation of planes and ships by using the stars in the sky. Some dead-reckoning navigation is included (5 cred.; no prereq.) III MTWF and one 3-hour laboratory period to be arranged. Luyten

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

51w.* General Astronomy. An outline of our knowledge of the planetary system and its motions, including those of the earth and the moon (3 cred.; jr., sr.; prereq. Math. 6) IV MWF Luyten

52w. § Astrophysics (4 cred.; prereq. 51 or 11 and Math. 6) II MTWF Luyten

53s. § Stellar Astronomy (3 cred.; prereq. 51 or 11 and Math. 6) II MWF Luyten

101f. § Celestial Mechanics (3 cred.; jr., sr., grad.; prereq. Math. 51) II MWF Luyten

140f. § Least Squares (3 cred.; prereq. 51 or 11 and at least Math. 51) II MWF Luyten

NOTE—Courses 101 and 140 are usually offered in alternate years, and only one will be given in each year, depending largely on the demand.

* No student may receive credit for both Course 11 and Course 51.

† A fee of \$1 is charged for this course.

†† A fee of \$2 is charged for this course.

§ No student should register for this course without first consulting the instructor

BACTERIOLOGY

MEDICAL SCHOOL

Major adviser in the College of Science, Literature, and the Arts—Dr. Skinner.

Major sequence in the College of Science, Literature, and the Arts—Eight senior college credits in organic chemistry, Bact. 53 or 101, 102, and 12 further Senior College credits in bacteriology. Zoology 51 may count as bacteriology, but not as organic chemistry.

(Prerequisites: 10 credits in botany or zoology and 15 credits in inorganic and analytical chemistry. Plan I with a foreign language is strongly recommended.)

Modification of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Junior College Courses

1s. Elements of Bacteriology (4 cred.; no prereq.) III-IV MWF

Senior College Courses

Course 53 is open to Junior College students who have a grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

53f,w,s.¶¶ General Bacteriology. Methods of staining and identification; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries and to disease; bacteriology as a science; morphology and physiology (5 cred.; soph. with a C average in the prerequisite courses, jr., sr.; prereq. 10 cred. in chem. and 4 cred. in biological sciences or permission of instructor) VII-IX MWF Staff

101.¶¶ Medical Bacteriology. General microbiology; methods for studying and identifying bacteria; sterilization and disinfection; water analysis and sewage treatment; principles of infection and immunity; the pathogenic cocci (5 cred.; jr., sr., grad.; prereq. 10 cred. in chem. and 10 cred. in biology) Ziegler

102.‡ Medical Bacteriology. The pathogenic bacteria, especially in relation to definite diseases (4 cred.; jr., sr., grad.; prereq. 101. Bact. 53 accepted for all but medical students) Ziegler

103f. Soil Microbiology. Methods for enumeration and study of microflora and microfauna. Biochemical activities of soil population (3 cred.; jr., sr., grad.; prereq. 53 or 101 and 8 credits in organic chemistry) IV TThS and V TTh Skinner

104w. Sanitary Bacteriology. A laboratory class in standard and approved methods for the bacteriological examination of water, milk, and foods; preparation and use of standard culture media (4 cred.; jr., sr., grad.; prereq. 9 cred. in bact., 4 cred. in organic chem.) IV-V TThS Skinner

114s. Molds, Yeasts, and Actinomycetes. A study of molds, yeasts and actinomycetes with which the bacteriologist has to deal in medicine and industry. Staining, isolation, culturing, identification (4 cred.; jr., sr., grad.; prereq. 9 cred. in bact. or 5 cred. in bact. and 4 cred. in plant pathology) VII-VIII TTh and III-IV S Skinner

116w. Immunity. Laws of hemolysis; quantitative relationship between antigen and antibody; Wasserman reaction; opsonins, vaccines, toxin, antitoxin, precipitin reactions, blood grouping, atopy, anaphylaxis (3 cred.; sr., grad.; prereq. 102) VII-IX TTh McLimans

120s. Diseases of Animals Transmissible to Man. Plague, tularemia, undulant fever, typhus fever, spotted fever, and other human diseases from animal reservoirs (3 cred.; jr., sr., grad.; prereq. 102) VI MWF McLimans

121f-122w.† Physiology of Bacteria. Growth; enzymes; metabolism; fermentation; dormancy; death. Chemistry of immunity (6 cred.; jr., sr., grad.; prereq. Bact. 53 and 8 cred. in org. chem. or biochem.) III TThS Halvorson

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ Microscope required. Students may obtain use of microscope by purchasing \$3 microscope card from bursar.

¶ No student may receive credit for both Course 53 and Course 101.

§ The schedule for this course is uncertain. Students wishing to take it should consult the department.

- 123s. Applied Bacteriology. Statistics as applied to bacteriology; bacteriology of water and sewage (3 cred.; jr., sr., grad.; prereq. 121-122) III TThS Halvorson
 124f. Filterable Viruses. Character, nature, and transmission of viruses; important virus diseases (4 cred.; jr., sr., grad.; prereq. 102, histology recommended) VI-VIII TTh Stulberg

BIOSTATISTICS

See Public Health, page 116

BOTANY

Major adviser in the College of Science, Literature, and the Arts—Professor Dahl.

Major sequence in the College of Science, Literature, and the Arts—In Botany, 27 credits in Senior College courses in botany, including Courses 50, 51, 52, 53, 54, and Pl.Path. 56.

(Prerequisites: Botany 1-2-3 or 4-5, 2 quarters of inorganic chemistry, Principles of Genetics (Agronomy and Plant Genetics 31) or Zoology 83, and at least one year of French or German.)

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Cooper.

Requirements for a teacher's certificate—Major recommendation: Courses 1-2-3 or 4-5, 12, 50, 51, 53, 54, 10 or 52, and 3 additional credits in botany.

Minor recommendation: Courses 1-2-3 or 4-5, 12, 10 or 52 and three additional credits.

For a specialized curriculum in natural science see the *Bulletin of the College of Education*.

For a course in General Biology, Natural Science 7-8-9, see Department of General Studies, page 63.

Junior College Courses

- 1†-2w†-3s.*† General Botany. A survey lecture and laboratory course on plants and their human interest; characteristics of living matter; fundamental facts of growth, structure, and reproduction of plants; principles underlying inheritance, variation, organic evolution, and relations to environment (10 cred.; no prereq.) Lect. III TTh; VI TTh Banks; lab. III-IV TTh (intended primarily for students in the College of Agriculture, Forestry, and Home Economics); V-VI TTh (intended primarily for students in the College of Agriculture, Forestry, and Home Economics); VII-VIII TTh (intended primarily for students in the College of Agriculture, Forestry, and Home Economics); IX-X TTh (intended primarily for students in the College of Agriculture, Forestry, and Home Economics); I-II WF; III-IV WF; V-VI WF; VII-VIII WF
- 4††-5.*†† *General Botany* (10 cred.; no prereq.) (*Not offered*)
- 10.§ *Minnesota Plant Life*. A non-technical survey of all the groups of plants native to Minnesota with special reference to identification and distribution. A course suitable for non-majors (3 cred.; no prereq.) (*Not offered*)
- 12w.§ *Plants Useful to Man*. Survey of the world's useful plants and plant products, their sources, characteristics and uses. Demonstration of material. Plants and Man: the origin and history of cultivated plants. A course suitable for non-majors (3 cred.; no prereq.) IV TThS Lawrence

* Any student who has had Course 1 given in 1942-43 and earlier years should register for 2-3. If he has had additional courses he should consult the Department of Botany before registering for any other course. He may be permitted to take any one of Courses 50, 51, 52, 53, 54.

† A fee of \$1.50 is charged for this course.

†† A fee of \$2.25 is charged for Course 4-5.

§ This course does not satisfy any part of the laboratory science requirement of the College of Science, Literature, and the Arts.

Senior College Courses

Courses 50, 51, 52, 53, 54, Pl.Path. 56 are open to sophomores who have an average grade of at least C in Botany 1-2-3 or 4-5 or in Natural Science 7-8-9. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50f.‡ General Plant Ecology. An introduction to the science of plant ecology, with emphasis upon the adjustment of the individual plant to its environment (3 cred.; jr., sr.; prereq. 1-2-3 or 4-5) Lect. III MW Cooper; lab. I-II MW; IV-V MW
- 51s.‡ General Plant Physiology. Introductory study of plant physiology. Emphasis on fundamental principles requisite to understanding physiological phenomena encountered in higher land plants. Cellular physiology, enzymes, respiration, photosynthesis, mineral nutrition, water and solute metabolism, hormones, tropisms, physiological ecology (4 cred.; jr., sr.; prereq. 1-2-3 or 4-5 and two quarters of inorganic chemistry) Lect. VI MW Brown; lab. III-IV MW; VII-VIII MW. There will be one conference hour arranged
- 52s.‡ Elementary Taxonomy. An introduction to the ferns and flowering plants of Minnesota with special reference to the spring flora. The families of plants and their relationships; floral structure; taxonomic terms; methods of collection and identification; field work (3 cred.; jr., sr.; prereq. 1-2-3 or 4-5) Lect. VI MW Ownbey; lab. VII-VIII MW
- 53s.‡ Introductory Plant Anatomy. The structure and development of plants with especial reference to the vascular plants (3 cred.; jr., sr.; prereq. 1-2-3 or 4-5) II-IV TTh Abbe
- 54s.‡ Survey of the Plant Kingdom. A brief consideration of evolutionary relationships throughout the plant kingdom, especially as illustrated by life histories (5 cred.; jr., sr.; prereq. 1-2-3 or 4-5) II-IV MWF Abbe
- Pl.Path.56f. Introduction to the Study of Fungi (3 cred.; jr., sr.; prereq. 9 cred. in botany or permission of instructor) Lect. II MW; lab. II-III F Christensen
108. *Pteridophytes* (5 cred.; sr., grad.; prereq. 54) (*Not offered*)
110. *Gymnosperms* (5 cred.; sr., grad.; prereq. 54) (*Not offered*)
- 112w.‡ Aquatic Flowering Plants. A study of the higher plants of aquatic and marsh habitats. Identification; adaptive morphology and food value to wildlife (3 cred.; prereq. bot. or zool. 10 cred., or consent of instructor) Lect. IV MW; lab. ar. Ownbey
- 113f.‡ Flora of Minnesota. A survey of the flowering plants of the state with particular reference to the fall flora of the local area. Collection and identification of species; distribution in Minnesota; taxonomic methods and literature (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5 or consent of instructor) VI-VIII TTh Ownbey
- 114.‡ *Phyletic Taxonomy of Angiosperms*. A detailed study of the characteristics and arrangement of the orders and families of flowering plants with emphasis upon natural or ancestral relationships (3 cred.; jr., sr., grad.; prereq. 52 or consent of instructor) (*Not offered in 1948-49*)
- 115s.‡ Spring Flora of Minnesota. A survey of the flowering plants of Minnesota. The use of keys and taxonomic descriptions; collection, preparation, and identification of the spring flora of the local area (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5 or consent of instructor) VI-VIII TTh Ownbey
117. *Floristic Plant Geography* (5 cred.; jr., sr., grad.; prereq. 52 or consent of instructor) (*Not offered*)
- 118w.‡ Extranuclear Cytology. A detailed study of the structure of protoplasm, cytoplasmic constituents, and the cell wall in the light of their chemical and physical properties (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5 or equiv.) VI-VII MWF Dahl
- 119f.‡ Nuclear Cytology. The non-mitotic nucleus, mitosis, meiosis, and the bearing of chromosome behavior on genetics, taxonomy, sex, and the life cycles of plants (3 cred.; jr., sr., grad.; prereq. 1-2-3, or 4-5 or equiv. and an elem. course in genetics) Lect. IV MW Dahl; lab. II-III MW; VI-VII MW
- 120s.‡‡ Research Methods in Cytology. Principles and practice of preparing materials for cytological investigation; methods of investigating such preparations and presenting the results (3 to 5 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5, 118 or 119, and consent of instructor) Lect. III MWF Dahl; lab. ar. Hansen
- 121f.‡ Developmental Anatomy. The microscopic structure of vascular plants with particular attention to development in the root, stem, and leaf (5 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5) II-IV MWF Abbe
- 123.‡‡ *Research Methods in Histology*. Principles and practice of preparing materials for histological investigation; methods of investigating such preparations and presenting the results (3 to 5 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5, 121 and consent of instructor) (*Not offered*)

‡ A fee of \$1.50 is charged for this course.

‡‡ A fee of \$3 is charged for this course.

- 127w.‡ Morphology of Vascular Plants. A detailed consideration of the evolutionary interrelationships of the vascular plants (5 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5) II-IV MWF Abbe
- 130f.‡ General Plant Ecology. An introduction to the science of plant ecology, with emphasis upon the adjustment of the individual plant to its environment. (In order to receive graduate credit for this course an acceptable term paper must be completed) (3 cred.; sr., grad.; prereq. 1-2-3 or 4-5) Lect. III MW Cooper; lab. I-II MW; IV-V MW
- 131f. Field Ecology. A survey of the local plant communities and their development, and a study of the general principles of plant association and succession (5 cred.; jr., sr., grad.; prereq. 50 or 130 or For. 2, 3, 4) VI-VIII MWF Cooper, Lawrence
- 132w.‡ Morphological Ecology. The vegetative body of the plant in relation to environment. A survey of evolutionary adaptation in the plant kingdom (5 cred.; jr., sr., grad.; prereq. 50 or 130 or For. 2, 3, 4) VI-VIII MWF Cooper
- 133s. Ecological Plant Geography. Preliminary discussion of ecological principles in plant distribution followed by a detailed study of the vegetation regions of North America (5 cred.; jr., sr., grad.; prereq. 50 or 130 or For. 2, 3, 4) VI-VIII MWF Cooper
- 134f.‡ Research Methods in Ecology. Theory and practice of instrumental study of the habitat and of precise investigation of community and succession (5 cred.; jr., sr., grad.; prereq. 18 cred. in pl. sci. incl. 50 or 130 and consent of instructor) I-III TThS and IV S Lawrence
- 137s.‡ Experimental Ecology. The ecological life history of a single native species is worked out in detail, and the principles involved are applied to the study of plant distribution (5 cred.; jr., sr., grad.; prereq. 18 cred. in pl. sci. incl. 50 or 130, 51 and consent of instructor) I-III TThS and IV S Lawrence
- 140f. Advanced Survey of Plant Physiology. Advanced study of major topics in plant physiology. Cell physiology including: Membrane phenomena, enzyme catalysis, respiration, fermentation, and photosynthesis; mineral nutrition; water metabolism; translocation of solutes; growth; hormones; tropisms (3 cred.; jr., sr., grad.; prereq. 51 or equiv. and an elementary course in organic chem. or biochem. or consent of instructor) 1:00 to 2:15 p.m. TTh Brown
- 154.‡‡ *Spectroscopy and Photochemistry Applied to Biology* (3 to 5 cred.; jr., sr., grad.; prereq. 20 cred. in chem. or biochem. or consent of instructor) (*Not offered*)
- 165s.‡ Introduction to Pollen Analysis. The ontogeny, comparative morphology, preparation of reference collections, and identification of pollen grains; applications of pollen analysis to allergy, ecology, and phylogeny; practice in atmospheric analysis (3 cred.; jr., sr., grad.; prereq. consent of instructor) VI-VII MWF Dahl
- 170f. Water Relations of Plants. Study of colloid phenomena, diffusion, osmosis and characteristics of living membranes. Cell water relations. Absorption, transport, and transpiration of water by higher plants. Translocation of solutes (3 cred.; sr., grad.; prereq. Bot. 51 or 140, 20 cred. in chem. or agri. biochem., and Phys.Chem. 101, 102, 103 or 107-108, or consent of instructor) 9:00-10:30 a.m. TTh Brown, Frenkel. For laboratory see Course 173
- 171w. Mineral Nutrition of Plants. A study of the chemical elements necessary for plant nutrition and of their role in normal metabolism. Relationship of nutritional factors to other physiological processes. Deficiency and toxicity of mineral elements (3 cred.; sr., grad.; prereq. Bot. 51 or 140, 20 cred. in chem. or agri. biochem., and Phys.Chem. 101, 102, 103 or 107-108, or consent of instructor) 9:00-10:30 a.m. TTh Brown, Frenkel. For laboratory see Course 174
- 172s. Plant Growth. Study of hormonal physiology. Consideration of external factors influencing growth. Study of dormancy, germination, growth periodicities, movement of plants, and physiology of reproduction (3 cred.; sr., grad.; prereq. Bot. 51 or 140, 20 cred. in chem. or agri. biochem., Phys.Chem. 101, 102, 103 or 107-108, or consent of instructor) 9:00-10:30 a.m. TTh Brown, Frenkel. For laboratory see Course 175
- 173f,‡‡-174w,‡‡-175s.‡‡ Advanced Physiology Laboratory (2 cred. per qtr.; sr., grad.; to be taken with or after 170, 171, 172 respectively) VI-X T; VI-X Th Brown, Frenkel
176. *Plant Respiration*. A study of the biochemical mechanism of carbohydrate degradation in plants with emphasis on fundamental aspects of biological oxidation (3 cred.; sr., grad.; prereq. Bot. 51 or 140, 20 cred. in chem. or agri. biochem., Phys.Chem. 101, 102, 103 or 107-108, or consent of instructor) (*Not offered in 1948-49*) For laboratory see Course 179
177. *Photosynthesis*. A detailed survey of the present state of knowledge of the photosynthesis of organic matter by plants (3 cred.; sr., grad.; prereq. Bot. 51 or 140, 20 cred. in chem. or agri. biochem., Phys.Chem. 101, 102, 103 or 107-108, or consent of instructor) (*Not offered in 1948-49*) For laboratory see Course 180
178. *Nitrogen Metabolism of Plants*. Conversion of inorganic nitrogen compounds into organic compounds. Nitrogen fixation. Interrelation with other metabolic processes of plants (3 cred.; sr., grad.; prereq. Bot. 51 or 140, 20 cred. in chem. or agri. biochem., Phys.Chem. 101, 102, 103 or 107-108, or consent of instructor) (*Not offered in 1948-49*)

‡ A fee of \$1.50 is charged for this course.

‡‡ A fee of \$3 is charged for this course.

- 179†-180†-181.† *Advanced Physiology Laboratory* (2 cred. per qtr.; sr., grad.; to be taken with or after 176, 177, 178 respectively) (*Not offered in 1948-49*)
- 197†-198w†-199s.‡ *Problems. Advanced work in a specialized field* (1 to 5 cred. per qtr.; jr., sr., grad.; prereq. 20 cred. in nat. sci. and permission of instructor) Ar. Ar. Ar.

For Graduate Students Only

- 201f-202w-203s. *Research Problems in the Morphology of Vascular Plants.* Abbe
- 205f-206w-207s. *Research Problems in Taxonomy and Floristic Plant Geography.* Ownbey
- 209f-210w-211s. *Research Problems in Paleobotany.* Banks
- 221f-222w-223s. *Research Problems in Ecology.* Cooper, Lawrence
- 225f-226w-227s. *Research Problems in Plant Physiology.* Brown, Frenkel
- 229f-230w-231s. *Research Problems in Cytology.* Dahl
- 240f-241w-242s. *Seminar in Morphology.* Abbe
- 243f-244w-245s. *Seminar in Taxonomy.* Ownbey
- 246f-247w-248s. *Seminar in Paleobotany.* Banks
- 249f-250w-251s. *Seminar in Ecology.* Cooper, Lawrence
- 252f-253w-254s. *Seminar in Plant Physiology.* Brown, Frenkel
- 255f-256w-257s. *Seminar in Cytology.* Dahl

PLANT PATHOLOGY AND AGRICULTURAL BOTANY AND
AGRONOMY AND PLANT GENETICS

The following courses in the College of Agriculture, Forestry, and Home Economics regularly carry credit in the College of Science, Literature, and the Arts without petition:

Agronomy and Plant Genetics 31, Principles of Genetics
Plant Pathology and Agricultural Botany 1, Plant Pathology

Students in this college may elect other courses in "Plant Pathology and Agricultural Botany" and "Agronomy and Plant Genetics" by arrangement with the departments concerned. See the program of the College of Agriculture, Forestry, and Home Economics.

CHEMISTRY

INSTITUTE OF TECHNOLOGY

Major adviser in the College of Science, Literature, and the Arts—Associate Professor Heisig.

Major sequence in the College of Science, Literature, and the Arts—Analytical Chemistry 1-2; Organic Chemistry 61, 62, 63 and 64; Physical Chemistry 101-102-103 with appropriate amount of laboratory in Physical Chemistry 104-105-106.

(Prerequisites: Inorganic Chemistry 13 with its prerequisites Inorganic Chemistry 9, 10, and 12 or their equivalent; Physics 7-8-9; mathematics through differential and integral calculus.)

Modifications of this sequence may be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

In addition to the courses required for the major sequence, Arts students majoring in chemistry are advised to take two 3-credit advanced courses in chemistry with 2 credits of laboratory work to meet the minimum requirements set for the Bachelor's degree by the American Chemical Society. Two full years of chemistry are required for admission to these courses.

Students majoring in chemistry are advised to take sufficient courses in German to give a reading knowledge of the chemical literature.

‡ A fee of \$1.50 is charged for this course.

†† A fee of \$3 is charged for this course.

Major adviser in the College of Education—Professor Palmer O. Johnson.

Requirements for a teacher's certificate—Major recommendation: Inorganic Chemistry 6-7 or 9-10, 12; Analytical Chemistry 7; Organic Chemistry 61, 62 and 10 additional credits in chemistry.

Minor recommendation: Inorganic Chemistry 6-7 or 9-10, 12; Analytical Chemistry 7 and 6 additional credits in chemistry.

For a specialized curriculum in natural science see the *Bulletin of the College of Education*.

Note—Analytical Chemistry 1-2 and all courses numbered above 50 count as Senior College courses.

INORGANIC CHEMISTRY

1f,w†-2w,s,†† General Inorganic Chemistry. Study of the general laws of chemistry and of the non-metals and metals and their compounds (4 cred. per qtr.; no prereq.)

1f†-2w.† (Premedical, preidental, medical technology, and physical education students) Lect. VI MWF Pervier; quiz VI T; lab. VII-IX W; (S.L.&A. students) Lect. VIII MWF Lindeke; quiz VII T; lab. VII-IX Th; (S.L.&A. students) Lect. IX MWF Pray; quiz IX T; lab. VI-VIII M

1w†-2s.† (Agriculture, Engineering, and S.L.&A. students) Lect. II TThS Nebergall; quiz VII Th; lab. I-III M

4f†-5w.†† General Inorganic Chemistry. Study of the general laws of chemistry and of the nonmetals and metals and their compounds. More intensive than Course 1-2 (4 cred. per qtr.; prereq. entrance cred. in chem.) (Premedical and medical technology students) Lect. VII MWF Maynard; quiz VII T; lab. V-VII Th (Preidental, nursing education, and public health nursing students) Lect. VII MWF Brasted; quiz VII Th; lab. VIII-X W

6f,w†-7w,s.†† General Inorganic Chemistry. Study of the general laws of chemistry and of the non-metals, metals, and their compounds (5 cred. per qtr.; no prereq.)

6f†-7w.† (For chemistry, pharmacy, and S.L.&A. students) Lect. II MWF O'Brien; quiz I Th; lab. I-III T and II-III Th

6w†-7s.† (For chemistry and S.L.&A. chemistry majors) Lect. II TThS Johnson; quiz VIII Th; lab. I-II M and I-III W

9f†-10w.†† General Inorganic Chemistry. Study of the general laws of chemistry and of the nonmetals, metals, and their compounds (5 cred. per qtr.; prereq. entrance cred. in chem.) (For chemistry, pharmacy, and S.L.&A. chemistry majors) Lect. II MWF Sneed; quiz I Th; lab. I-III T and II-III Th

11f.†† Semimicro Qualitative Analysis. Laboratory work in systematic qualitative analysis of the cations with lectures on solutions, ionization; chemical and physical equilibria, oxidation and reduction, etc. (4 cred.; prereq. 2, 5, 7, or 10) Lect. IV TThS Johnson; lab. V-VIII M

11w.†† Semimicro Qualitative Analysis (See 11f) Lect. VIII MWF Pray; lab. VI-IX T

11s.†† Semimicro Qualitative Analysis (See 11f) (For premedical, preidental, medical technology, and physical education students) Lect. VI MWF Pervier; lab. VII-X W; (For S.L.&A. students) Lect. VIII MWF Lindeke; lab. VII-X Th; (For S.L.&A. students) Lect. IX MWF Pray; lab. VII-X T; (For premedical and medical technology students) Lect. VII MWF Maynard; lab. V-VIII Th; (For preidental, nursing education, and public health nursing students) Lect. VII MWF Brasted; lab. V-VIII T

12f.†† Semimicro Qualitative Analysis. Laboratory work in systematic qualitative analysis of the cations with lectures on solutions, ionization, chemical and physical equilibria, oxidation and reduction, etc. (5 cred.; prereq. 2, 5, 7, or 10) (For S.L.&A. chemistry majors) Lect. IV MWF Nebergall; lab. III-V TTh

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

† A fee of \$2 per quarter is charged for this course. Nonveterans should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against the deposit.

Veterans will receive information from the instructor concerning the purchase of the card and checking into the laboratory.

†† A fee of \$2.40 per quarter is charged for this course. Nonveterans should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2.40 course fee, laboratory material, and breakage will be charged against the deposit.

Veterans will receive information from the instructor concerning the purchase of the card and checking into the laboratory.

- 12w.‡‡ Semimicro Qualitative Analysis (See 12f) (For chemistry, engineering, and S.L.&A. students) Lect. III MWF Maynard; lab. II-IV TTh
- 12s.‡‡ Semimicro Qualitative Analysis (See 12f) (For chemistry, pharmacy, and S.L.&A. chemistry majors) Lect. II MWF Sneed; lab. I-III TTh; II MWF O'Brien; lab. I-III TTh
- 13f.‡‡ Semimicro Qualitative Analysis. Laboratory work in systematic qualitative analysis of the anions with lectures on solutions, ionization, chemical and physical equilibria, oxidation and reduction, etc. (5 cred.; prereq. 12) (For Chemistry and S.L.&A. chemistry majors) Lect. VI WF Heisig; quiz IX M; lab. VII-VIII M and VII-IX WF
- 102s.‡‡ Semimicro Qualitative Analysis. A course designed to acquaint the student with the universally applicable method and underlying principles in the identification of the more common cations by use of drop reactions on spot plate and filter paper, and separation by use of the centrifuge (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2) Ar. Ar. Barber
- 103f-104w-105s. Advanced Inorganic Chemistry. Fall—Special topics in inorganic chemistry. Winter—Atomic structure and the chemical bond. Spring—Coordination compounds (3 cred. per qtr.; jr., sr., grad.; prereq. Anal.Chem. 1-2 and Org.Chem. 62) VII MWF(f); III MWF(w,s) O'Brien, Brasted, Maynard
- 106w-107s. Chemistry of the Less Familiar Elements (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2 and Org.Chem. 62) Ar. Ar. O'Brien
- 108s. Nonaqueous Systems. A study of the principal nonaqueous systems—both protonic and aprotic systems. The theories of Bronsted, Lewis, and Usanovich are considered in detail (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2 and Org.Chem. 62) Ar. Ar. Pray
- 109w-110s.‡ Synthetic Inorganic Chemistry. Methods of preparation and purification of inorganic compounds of special interest. Current literature (3 to 5 cred. per qtr.; jr., sr., grad.; prereq. Org.Chem. 64) Ar. Ar. Heisig

For other courses in Inorganic Chemistry see the *Bulletin of the Institute of Technology*.

ANALYTICAL CHEMISTRY

- 1w-2s.‡‡ Quantitative Analysis. Introductory courses covering the general principles and methods of quantitative analysis. Typical problems are assigned and attention is given to proper laboratory practice. Course 1, Gravimetric Analysis. Course 2, Volumetric Analysis (5 cred. per qtr.; soph., jr., sr.; prereq. Inorg.Chem. 13) Lect. VI M Meehan; quiz VI F; rec. VI W; lab. VII-IX MWF; rec. VI W; lab. I-III TThS; rec. VI Th; lab. VII-IX TTh and any 3 hrs. selected from I-IV S
- 7f.‡ Quantitative Analysis. Introductory course covering the general principles and methods of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice (4 cred.; primarily for premedical students; prereq. Inorg.Chem. 11 or 12) Lect. VI F Meehan; rec. VI W; quiz VI M; lab. VII-IX MWF; lect. VI T O'Connor; rec. I S; quiz VI Th; lab. VII-IX TTh and II-IV S
- 7s.‡ Quantitative Analysis (Primarily for premedical students) (See 7f) Lect. VI T O'Connor; rec. I S; quiz VI Th; lab. VII-IX TTh and II-IV S
- 9w.‡ Quantitative Analysis (Primarily for dentists, engineers, and miners). A short introductory course covering general principles of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice (3 cred.; prereq. Inorg.Chem. 11 or 12) Lect. VI Th; rec. VI T; lab. VII-IX TTh O'Connor
- 96f-97w-98s.‡ Senior Topics (5 cred. per qtr.; sr.) Ar. Ar. Kolthoff, Sandell, Meehan
- 101w-102s.‡ Quantitative Analysis. General principles, methods, and procedure of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice (5 cred. per qtr.; jr., sr., grad.; prereq. Inorg.Chem. 13) VI-IX MWF Meehan

‡ A fee of \$2 per quarter is charged for this course. Nonveterans should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against the deposit.

Veterans will receive information from the instructor concerning the purchase of the card and checking into the laboratory.

‡‡ Course 2s may precede 1w, if necessary.

‡‡ A fee of \$2.40 per quarter is charged for this course. Nonveterans should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2.40 course fee, laboratory material, and breakage will be charged against the deposit.

Veterans will receive information from the instructor concerning the purchase of the card and checking into the laboratory.

- 103s.† Quantitative Inorganic Microanalysis. Representative methods of micro- and semi-microgravimetric, volumetric, and colorimetric analysis (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2) Ar. Ar. Sandell
- 104f.† Qualitative Inorganic Microanalysis. Use of microscope. Technique of handling small amounts of materials, inorganic qualitative analysis by means of crystal reactions and modern spot reactions (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2) Ar. Ar. Sandell
- 105w.† Polarizing Microscope. Its use and application to chemistry. Identification of substances (3 cred.; jr., sr., grad.; prereq. Phys.Chem. 101) VI F Sandell
- 106f†-107w†-108s.† General Technical Analysis. Analysis of commercially important materials such as iron, steel, non-ferrous alloys, ores, and glass; use of microscope in technical problems, quantitative analysis of heterogeneous mixtures, particle size determinations (2 or 3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1, 2) Ar. Ar. Sandell
- 109f,w,s.†§ Rock Analysis. Laboratory course covering the technique of rock analysis (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2) Ar. Ar. Peck
- 122f.† Advanced Analytical Chemistry. A condensed review of modern fundamentals of gravimetric and volumetric analysis (1 to 2 cred.; jr., sr., grad.; prereq. quantitative chemistry) Ar. Ar. Ar.
- 123f.† Advanced Analytical Chemistry. Analysis of complex materials by modern methods (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2 or permission of instructor) Ar. Ar. Meehan
- 127s.† Optical Methods in Analytical Chemistry (2 to 3 cred.; prereq. Phys.Chem. 103) Ar. Ar. Meehan
- 131f.† Application of Indicators in Neutralization Reactions and pH Determinations (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2 and Phys.Chem. 103) Lect. VI MW Kolthoff; lab. ar.
- 132w.† Electrometric Measurements and Titrations. Application of potentiometric and conductometric methods in analytical work (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2 and Phys.Chem. 103) Lect. VI MW Kolthoff; lab. ar.
- 133s. Voltammetry and Amperometric Titrations—Lecture Course. A discussion of the use of the dropping mercury electrode (polarograph) and the platinum microelectrode in pure and applied chemistry (2 cred.; jr., sr., grad.; prereq. Phys.Chem. 103) Ar. Ar. Kolthoff
- 134f,w,s.† Voltammetry and Amperometric Titrations—Laboratory course (2 cred.; jr., sr., grad.; prereq. Anal.Chem. 133) Ar. Ar. Kolthoff
- 135f†-136w†-137s.† Seminar: Modern Problems in Analytical Chemistry (1 cred. per qtr.; jr., sr., grad.; prereq. Anal.Chem. 1-2, and Phys.Chem. 103) IV T Kolthoff
- 138s. Advanced Volumetric Analysis (3 cred.; jr., sr., grad.; prereq. Anal.Chem. 131) Ar. Ar. Kolthoff
- 140w.† Water Analysis. Analysis of potable water with interpretation of results (2 cred.; jr., sr., grad.; prereq. Anal.Chem. 1-2) Ar. Ar. Sandell

For Graduate Students Only

- 201f-202w-203s. Selected Topics in Analytical Chemistry (3 cred. per qtr.; prereq. Anal.Chem. 1-2 and 123) Ar. Ar. Kolthoff
- 301f-302w-303s. Research in Quantitative Analysis (Cred. ar.) Ar. Ar. Kolthoff, Sandell, Meehan

ORGANIC CHEMISTRY

- 61f†-62w.†† Elementary Organic Chemistry. Discussion of important classes of organic compounds, both aliphatic and aromatic together with some heterocyclic compounds. Laboratory work includes the preparation of typical substances (4 cred. per qtr.; for chem., chem. eng., premedical, pre-dental, and pharmacy students; prereq. 12-15 cred. in chem.) Lect. I MWF Dodson; lab. conference II T; quiz I T; lab. VI-IX T; VI-IX W; I-IV Th; or I-IV S; lect. III MWF Arnold; lab. conference III S; quiz III Th; lab. VI-IX M; II-V T; VI-IX T; or VI-IX Th
- 61w-62s.†† Elementary Organic Chemistry (See 61f-62w) Lect. IV MWF Koelsch; lab. conference IV Th; quiz IV T; lab. VI-IX W; VI-IX Th; I-IV Th; I-IV S; or VI-IX F; lect. IV TThS Dodson, lab. conference IV M; quiz IV W; lab. VI-IX M; VI-IX T; VI-IX W; VI-IX Th; or VI-IX F
- 63f,s. Elementary Organic Chemistry. Lecture Course (3 cred.; prereq. Org.Chem. 62. Continuation of 61-62) (Open to all except premedical, pre-dental, and pharmacy students. Course 63 is prerequisite to all other advanced courses in organic chemistry) Lect. III MWF Parham; quiz III Th

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

† A fee of \$2 per quarter is charged for this course. Nonveterans should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against the deposit.

Veterans will receive information from the instructor concerning the purchase of the card and checking into the laboratory.

§ Registration limited. Permission of instructor must be obtained.

- 64f,s.‡ Elementary Organic Chemistry—Laboratory Course. Preparation of typical substances (3 cred.; must be accompanied or preceded by 63. Course 64 is prerequisite to all other advanced courses in organic chemistry) Lab. conference III S Parham; lab. II-IV and VI-VIII T; VI-VIII TTH
- 96f‡-97w‡-98s.‡ Senior Thesis. This course may be taken with any member of the Organic Chemistry Division staff (5 cred. per qtr.; sr.; prereq. 101 and 102 or equiv.) Ar. Ar. Ar.
- 101w. Organic Chemistry. Intermediate Organic Chemistry. A survey course in which are considered important modern topics such as unusual types of aliphatic, aromatic and heterocyclic compounds, natural products, and industrial processes (3 cred.; jr., sr., grad.; prereq. 14 cred. in org. chem.) III MWF Lauer
- 102f.‡ Organic Chemistry. Characterization of Organic Compounds (elementary course). An introduction to the methods of organic qualitative analysis (3 cred.; jr., sr., grad.; prereq. one year of organic chemistry) (Registration limited. Permission of instructor must be obtained) Lect. III M Lauer; lab. VI-VIII M and either VI-VIII W or F
- 105f-106w-107s. Advanced Organic Chemistry. Advanced descriptive course covering the field of organic chemistry, together with an introduction to the literature of organic chemistry. Lectures and outside reading. Ability to read German is assumed (3 cred. per qtr.; jr., sr., grad.; prereq. 63 and 64 or equiv.) IV MWF Smith
- 110f.‡‡ Organic Qualitative Analysis (advanced course). Reactions of typical functional groups, identification of pure organic compounds, separation and identification of constituents of mixtures (3 cred.; prereq. 102 or equiv.) (Registration limited. Permission of instructor must be obtained) 9 laboratory hours per week. Ar. Koelsch
- 116w. Heterocyclic Compounds. Discussion of typical classes of heterocyclic compounds, their chemical and physical properties and uses, and the ring closures leading to heterocycles (3 cred.; prereq. 63 and 64) Ar. Ar. Parham
- 130s.‡ Organic Quantitative Analysis. Methods of proximate and ultimate analysis of organic compounds, with special attention to semimicro methods (3 cred.; prereq. 63 and 64 and Anal.Chem. 1 and 2) (Registration limited. Permission of instructor must be obtained) Lect. 1 hr. ar Lauer; lab. 6 hrs. ar.
- 139f,w,s.‡ Advanced Organic Chemistry Laboratory Work. Selected laboratory problems of an advanced nature, including some original work (2 to 5 cred.; prereq. 63 and 64. Ability to read German is assumed. Students are advised to take this course during the winter quarter. Permission of instructor is required to take it at any other time) Ar. Ar. Arnold
140. *Aromatic Compounds*. Discussion of the chemistry of typical aromatic compounds including derivatives of benzene, naphthalene, anthracene, phenanthrene, and other polynuclear hydrocarbons, together with a consideration of certain heterocyclic compounds which show aromatic character. The properties of these compounds will be illustrated by examples chosen from the sterols and the alkaloids (3 cred.; prereq. 63 and 64) (*Offered in alternate years. Not offered in 1948-49*)
- 141f. Reagents in Organic Chemistry. Discussion of typical reagents used in organic reactions; their limits of applicability, methods of use, and types of substances with which they react (3 cred.; prereq. 63 and 64) IV MWF Koelsch
- 142-143. *The Chemistry of Natural Products*. Discussion of the organic chemistry of important classes of natural products (3 cred. per qtr.; prereq. 63 and 64) (*Offered in alternate years. Not offered in 1948-49*)

For Graduate Students Only

- 201f-202w-203s. Organic Chemistry Seminar (1 cred. per qtr.) (Required of all graduate students taking major work in organic chemistry) 1 hr. per week ar. Ar.
- 205f-206w. Theoretical Organic Chemistry. Structure, reaction mechanisms, relation of physical properties to constitution, and other topics of a theoretical nature (3 cred. per qtr.; prereq. 107) Ar. Ar. Lauer
- 212s. Physico-Organic Chemistry. Contributions made to organic chemistry by kinetic and equilibrium studies of organic reactions, including mechanisms of catalytic and ionotropic reactions; and an introduction to the current electronic formulations of organic reactions. Lectures, outside reading, and a term paper are required (4 cred.; prereq. 107, Phys.Chem. 103, and calculus, or permission of instructor) Ar. Ar. Dodson
- 301f-302w-303s. Research in Organic Chemistry (Cred. ar.; prereq. 110 and permission of division) Ar. Ar. Ar.

‡ A fee of \$2 per quarter is charged for this course. Nonveterans should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against the deposit.

Veterans will receive information from the instructor concerning the purchase of the card and checking into the laboratory.

‡‡ A charge of \$10 is made to cover special chemicals in this course.

PHYSICAL CHEMISTRY

- 101f-102w-103s. Physical Chemistry. A general survey of the subject (3 cred. per qtr.; jr., sr., grad.; prereq. Anal.Chem. 1 and 2, one year college physics, and mathematics through differential and integral calculus) (101 is prereq. to 102 and 102 is prereq. to 103) Lect. IV MWF MacDougall, Livingston, Lipscomb; rec. IV S
- 104f‡-105w‡-106s.‡ Physical Chemistry Laboratory (To accompany or follow Course 101-102-103) (1 or 2 cred. per qtr.) Lect. VI M Livingston, Lipscomb; lab. VII-VIII M and VI-VIII W; lect. VI Th Livingston, Lipscomb; lab. VI-VIII T and VII-VIII Th; lect. VI M or VI Th Livingston, Lipscomb; lab. VI-VIII F and II-III S
- 107f-108w. Elementary Physical Chemistry (3 cred. per qtr.; for premedical students only; prereq. two years college chemistry, one year college physics) Lect. IV MW Crawford, Lipscomb; rec. IV F; lab. II-IV T
113. *Fundamentals of Reaction Kinetics*. Order of reaction, collision theory, equilibrium theory, chain reactions, flames and explosions in gases (3 cred.; jr., sr., grad.; prereq. 103) (*Offered in alternate years. Not offered in 1948-49*)
114. *Kinetics of Reaction in Liquid Solutions and in Heterogeneous Systems*. Effect of solvents and electrolytes on reaction velocity. Diffusion processes. Induced reactions. Homogeneous and heterogeneous catalysis (3 cred.; jr., sr., grad.; prereq. 113) (*Offered in alternate years. Not offered in 1948-49*)
- 116f. Advanced Physical Chemistry. Thermodynamics. Designed to cover the fundamentals with application to chemical problems (3 cred.; jr., sr., grad.; prereq. 103) II TThS Crawford
- 117w. Advanced Physical Chemistry. Phase Rule. Thermodynamics of electrolytic solutions. Elements of reaction kinetics (3 cred.; jr., sr., grad.; prereq. 116) II TThS Livingston
- 118s. Advanced Physical Chemistry. Electrical conductance and other non-equilibrium properties of electrolytic solutions. Physical properties and chemical structure (3 cred.; jr., sr., grad.; prereq. 117) II TThS Lipscomb
- 120w-121s. Introduction to Molecular Structure. Elementary quantum and statistical mechanics, with minimal mathematics; theory of the chemical bond as applied to problems of reactivity (3 cred. per qtr.; prereq. Phys.Chem. 103 or equivalent) Ar. Ar. Crawford
122. *Crystal Chemistry*. An elementary survey course in crystal chemistry. Crystals containing ionic, covalent and metallic bonds. Relation between crystal structures and chemical and physical properties. Glasses, fibers, and liquids (3 cred.; jr., sr., grad.; prereq. Phys.Chem. 103) (*Offered in alternate years. Not offered in 1948-49*)
- 123w-124s. Crystal Analysis. Theory and practice of X-ray crystallography. Methods and examples of structure determination (3 cred. per qtr.; jr., sr., grad.; prereq. Phys.Chem. 103) Ar. Ar. Lipscomb
- 128f. Colloid Chemistry. The fundamental principles of colloid chemistry, surface chemistry, electrokinetic phenomena, lyophobic and lyophilic colloids. (3 cred.; jr., sr., grad.; prereq. Phys.Chem. 103) IV MWF Reyerson
- 129w. Adsorption and Catalysis. The fundamental principles of adsorption at the different interfaces and the application of these principles to heterogeneous catalysis (3 cred.; jr., sr., grad.; prereq. 128) IV MWF Reyerson
- 130s. Colloids in Industry. The important applications of colloid chemistry to many of the fields of chemical industry (3 cred.; jr., sr., grad.; prereq. 128) IV MWF Reyerson
131. *Colloidal Processes*. A survey of the important colloidal processes; coagulation sol-gel transformation, thixotropy and dilatancy (3 cred.; jr., sr., grad.; prereq. 128) (*Offered in alternate years. Not offered in 1948-49*)
- 132f‡-133w‡-134s.‡ Colloid Chemistry Laboratory (Cred. ar.; sr., grad.; prereq. 128) Ar. Ar. Reyerson
- 161f-162w. Nuclear Chemistry and Radioactivity. The properties of nuclei, disintegration, properties of radiations; natural and artificial radio-activity; modern views of nuclear structure (3 cred. per qtr.; prereq. 103) III MWF O'Connor
- 175s. Photochemistry. General survey, including a discussion of spectroscopy, with particular reference to the visible and ultraviolet absorption spectra of molecular gases (3 cred.; jr., sr., grad.; prereq. 103 and Physics 9) I TThS Livingston

AGRICULTURAL BIOCHEMISTRY

Students in this college may elect courses in Agricultural Biochemistry by arrangement with the division. See the program of the College of Agriculture, Forestry, and Home Economics.

‡ A fee of \$2 per quarter is charged for this course. Nonveterans should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against the deposit.

Veterans will receive information from the instructor concerning the purchase of the card and checking into the laboratory.

CHILD WELFARE

INSTITUTE OF CHILD WELFARE

Adviser in the College of Science, Literature, and the Arts—Professor Anderson.

Major advisers in the College of Education—Professor Anderson and Mrs. Fuller.

For a specialized curriculum in Nursery School and Kindergarten Education, see the *Bulletin of the College of Education*.

Junior College Courses

- 10s. Introduction to Child Study. Orientation in child development. Survey of child development, nursery school, parent education, and mental hygiene approaches to child study (2 cred.; 3rd qtr. fr., soph.; no prereq.) V TTh Cummings
- 40f.* Child Training. The physical and mental development of the child. The training of young children. Observations in the Nursery School, lectures, and reports (3 cred.; soph., jr., sr.; prereq. Psy. 1-2) VI TTh Fuller
- 40w.* Child Training (See 40f) V MW Peterson; VI TTh Fuller
- 40s.* Child Training (See 40f) VI TTh Fuller

Note—See also Family Life 25f,w,s (Child Development and Adjustment) under General Studies, page 61.

Senior College Courses

Course 80 is open to sophomores who have an average grade of at least C in Psychology 1-2. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 80f,w,s. Child Psychology. A survey of child psychology and its applications (3 cred.; jr., sr.; prereq. Psy. 1-2) IV MWF Harris (f), Roff (w), Hansen (s)
- 130f. Motor, Linguistic, and Intellectual Development of the Child. Interpretation of the scientific literature. Lectures, readings, and reports (3 cred.; sr., grad.; prereq. 12 cred. in psy. or equiv.) II MWF Templin
- 131w. Personality, Emotional, and Social Development of the Child. Interpretation of the scientific literature. Lectures, readings, and reports (3 cred.; sr., grad.; prereq. 12 cred. in psy. or equiv.) II MWF Harris
- 132s. Later Childhood and Adolescence. Growth, social adjustment, emotional, mental, and personality development. Leisure-time activities, educational and vocational interests (3 cred.; sr., grad.; prereq. 12 cred. in psy. or equiv.) II MWF Harris
- 133f-134w-135s. Research Methods. Methods used in the study of children. Laboratory exercises and problems on Institute data (2, 4, or 6 cred.; sr., grad.; prereq. 10 cred. in psy. or ed. psy. including statistics) VII-VIII TTh Anderson
- 140f. Behavior Problems in Younger Children. Nature, origin, and treatment of behavior difficulties in young children. (2 cred.; sr., grad.; prereq. 12 cred. in psy., ed. psy., or soc.) III-IV S Blodgett
- 140w. Behavior Problems in Younger Children (See 140f) VIII-IX Th Blodgett
- 141w. Behavior Problems in Older Children. Nature and origin of behavior difficulties in older children, with particular reference to readjustment in adolescence (2 cred.; sr., grad.; prereq. 12 cred. in psy., ed. psy., or soc.) III-IV S Blodgett
- 141s. Behavior Problems in Older Children (See 141w) VIII-IX Th Blodgett
- 142s. Psychology of Atypical Children. A survey of the scientific literature on children with physical and mental handicaps. Emphasis upon personal, social, and vocational adjustment (2 cred.; sr., grad.; prereq. 12 cred. in psy.) II TTh Blodgett
- 143f. Problems of Mental Deficiency. The psychology of the mentally deficient; training, institutional and home care, social and vocational adjustment. Special problems in the clinical diagnosis and appraisal of mental deficiency. (3 cred.; sr., grad.; 12 cred. in psy. or equiv.) III MWF Blodgett, Harris
- 150f-151w-152s. Childhood Education. Lectures and readings on the philosophy and current methods of early childhood education; discussion of the needs of children, and of means of integrating the school with the home and the community (2, 4, or 6 cred.; sr., grad.; prereq. 12 cred. in psy. or equiv.) VIII TTh Fuller

* Not open to Home Economics students, who should take Home Economics Education 90, which is offered fall and spring on the St. Paul Campus. See program of the College of Education.

- 160s. Physical Growth and Development. The growth of the human body and its systems from early fetal life to maturity (3 cred.; sr., grad.; prereq. 12 cred. in psy. or equiv.) I MWF Burkland
- 166f. Maturity and Aging: Developmental Changes and Adjustment. Survey of the scientific literature (3 cred.; sr., grad.; prereq. 15 cred. in psy., educ., or soc.) VI MWF Harris
- 170f. Parent Education. History and survey of programs, materials, and methods. Administration and organization. Lectures, discussions, and reports (3 cred.; sr., grad.; prereq. 15 cred. in child welfare or home econ. or educ. or psy. or soc. or public health) V MWF Cummings
- 185s. Children in a Changing World. The effects of social change and social stress upon children. War, depressions, and catastrophes. Problems of reconstruction and rehabilitation (3 cred.; sr., grad.; prereq. 12 cred. in psy., educ., or soc.) VI MWF Templin
- 190f. Use and Interpretation of Tests for Children. Survey of mental and personality testing from the viewpoint of the teacher, social worker, and others concerned with the use and interpretation of test results (2 cred.; sr., grad.; prereq. 12 cred. in psy., ed. psy., or soc.) III TTh Roff

For Graduate Students Only

- 220f-221w-222s. Seminar in Current Research (1 cred. per qtr.) Ar. Ar. Roff
- 225s. Seminar in Developmental Theory (2 cred.; permission of instructor) Ar. Ar. Anderson
- 226w. Seminar in Projective Methods with Children and Adolescents (2 cred.; permission of instructor) Ar. Ar. Harris
- 227s. Multiple Factor Analysis (2 cred.; permission of instructor) Ar. Ar. Roff
- 230f-231w-232s. Seminar in Recent Literature (1 cred. per qtr.) IX M Anderson
- 240f-241w-242s. Practicum in Behavior Problems (Cred. ar.; permission of instructor) Ar. Ar. Harris, Blodgett
- 250f,w,s. Internship in Professional Work with Children. Experience under qualified supervision. (Cred. ar.; prereq. permission of instructor) Ar. Ar. Anderson
- 270f-271w-272s. Readings and Research in Child Development (Cred. ar.) Ar. Ar. Anderson and others
- 274w-275s. Technique and Field Work in Parent Education (Cred. ar.; permission of instructor) Ar. Ar. Cummings
- 290w-291s. Mental Examination of Preschool Children (4 cred. per qtr.; permission of instructor) Ar. Ar. Blodgett

Note—See also Courses Ed.T. 55-58, 70, 77A-77B-77C, and Ed.C.I. 130, offered by the Institute of Child Welfare and listed under Methods and Directed Teaching, and Curriculum and Instruction in the program of the College of Education.

CLASSICS

Major adviser in the College of Science, Literature, and the Arts—Professor Heller.

Major sequences in the College of Science, Literature, and the Arts—

GREEK

Twenty-seven credits in Greek courses numbered above 50 or eighteen credits in such courses with (a) nine credits in Latin courses numbered above 50, or (b) Hist. 14A-15A-16A and nine credits chosen from Classics 106-107-108, 191-192-193, Hist. 50-51-52, 50a-51a-52a.

LATIN

Twenty-seven credits in Latin courses numbered above 50, or eighteen credits in such courses with (a) nine credits in Greek courses numbered above 50, or (b) Hist. 14A-15A-16A and nine credits chosen from Classics 106-107-108, 191-192-193, Hist. 50-51-52, 50a-51a-52a.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Heller.

Requirements for a teacher's certificate in Latin—Major recommendation: Courses 73, 81-82-83, 111-112-113, and Hist. 14A-15A-16A.

Minor recommendation: Courses 51, 73, and Hist. 14A-15A-16A.

To secure a recommendation from the department to take Special Methods and Directed Teaching in Latin a student must make a grade of C or better in Course 73.

GREEK

Junior College Courses

Greek 1f-2w.† Beginning Greek (10 cred.; no prereq.) I MTWThF Walton
 Greek 3s. Selections from Attic Prose (5 cred.; prereq. 1-2) I MTWThF Walton

Senior College Courses

Courses 51, 52, 53, 73 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26. Students who continue Greek in the Senior College will enroll in Greek 171, 172, 173, "Independent Reading." The subject matter of this course will be varied to meet the needs of the individual student.

Greek 51f. Lucian (3 cred.; jr., sr.; prereq. 1-2-3) IX MWF Heller
 Greek 52w. Homer (3 cred.; jr., sr.; prereq. 1-2-3) IX MWF Heller
 Greek 53s. Plato, Apology and Selections (3 cred.; jr., sr.; prereq. 1-2-3) IX MWF Swanson
 Greek 73s. New Testament (3 cred.; jr., sr.; prereq. any two of 51, 52, 53) II TThS Heller
 Greek 121-122-123.† *Advanced Composition* (9 cred.; jr., sr., grad.; prereq. 24 cred. in Greek) (*Not offered*)
 Greek 171f,*172w,*173s.* Independent Reading in (e.g., Aeschylus, Sophocles, Pindar, Herodotus, Thucydides, Hellenistic prose) (3 cred. per qtr.; open to students of exceptional ability with the consent of the department) Ar. Ar. Swanson

For Graduate Students Only

Greek 201f-202w-203s. Graduate Seminar: Greek Literary Bibliography and Criticism (9 cred.) III-IV S Heller
 Greek 211-212-213. *Graduate Seminar: Greek Epic* (9 cred.) (*Not offered*)
 Greek 221-222-223. *Graduate Seminar: Greek Drama and Lyric Poetry* (9 cred.) (*Not offered*)
 Greek 231-232-233. *Graduate Seminar: Greek Philosophy* (9 cred.) (*Not offered*)

Courses for Which No Knowledge of Greek Is Required

(See page 48.)

LATIN

Junior College Courses

Lat.1f-2w.† Beginning Latin (10 cred.; no prereq.) IV MTWThF Heller
 Lat. 3s. Intermediate Latin (5 cred.; prereq. 1-2, or 1 yr. of high school Latin) IV MTWThF Forbes
 Lat.11f. Vergil I (5 cred.; prereq. 1-2, 3, or 2 yrs. of high school Latin) III MTWThF Forbes
 Lat. 12w. Vergil II (5 cred.; prereq. 11, or 3 yrs. of high school Latin) III MTWThF Forbes

Senior College Courses

Courses 51, 73, 81-82-83 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26. Students who continue Latin in the Senior College will enroll in Latin 171, 172, 173, "Independent Reading." The subject matter of this course will be varied to suit the needs of the individual student.

Lat.51f,w,s. Selected Readings from Prose and Poetry (3 cred.; jr., sr.; prereq. 12, or 3 or 4 yrs. of high school Latin) Ar. Ar. Ar.
 Lat.73f,w,s. Prose Composition (2 cred.; prereq. 12, or 3 yrs. of high school Latin) Ar. Ar. Heller
 Lat.81f-82w-83s.¶ Survey of Roman Literature (9 cred.; jr., sr.; prereq. 51, or 4 yrs. of high school Latin) II MWF Swanson
 Lat.111f-112w-113s.† Advanced Prose Composition (2 cred. per qtr.; jr., sr., grad.; prereq. 73) II TTh Heller

* Since the authors to be read vary from term to term and from year to year, this course may be repeated for credit.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

¶ Students may enter any quarter.

- Lat.133s. Vulgar Latin (Development of Latin into Romance) (3 cred.; jr., sr., grad.; open to advanced students of Latin or a Romance language with the consent of instructor) III MWF Swanson
- Lat.211f,*172w,*173s.* Independent Reading in (e.g., Plautus, Lucretius, Horace, Juvenal, Cicero, Livy, Tacitus, Suetonius (3 cred. per qtr.; open to students of exceptional ability with the consent of department) Ar. Ar. Ar.

For Graduate Students Only

- Lat.201-202-203. Graduate Seminar: Cicero (9 cred.) (Not offered)
- Lat.211f-212w-213s. Graduate Seminar: The Latin Epic (9 cred.) Ar. Ar. Ar.
- Lat.221-222-223. Graduate Seminar: Lyric Poetry (9 cred.) (Not offered)
- Lat.231-232-233. Graduate Seminar: Latin Historiography (9 cred.) (Not offered)
- Lat.241-242-243. Graduate Seminar: Introduction to Classical Philology (9 cred.) (Not offered)

Courses for Which No Knowledge of Greek or Latin Is Required

- Hist.14Af-15Aw-16As. Ancient Civilization with Basic Readings (15 cred.; no prereq.) VII TWTh Jones; VII MF Heller
- Classics 24s. Technical Terms of Science, Medicine, and the Humanities. Presentation in vivid English contexts of Greek and Latin prefixes, suffixes, and root words basic in modern technical vocabularies (3 cred.; soph., jr., sr.; no prereq.) Lect. IV MW Heller; quiz (medical, chemical, and biological sciences) IV F Heller; quiz (humanities, social science, engineering) V F Swanson
- Classics 31f,32w.¶ Greek and Latin Drama. Representative tragedies and comedies of the Greek and Latin dramatists are read and discussed. Lectures on the origin and development of the ancient drama and its relation to modern drama (2 cred. per qtr.; soph., jr., sr.; no prereq.) IV MW Ar.
- Classics 42w. Greek Mythology. The origin and development of myths (2 cred.; soph., jr., sr.; no prereq.) V MW Heller
- Classics 43s. Ancient Mythology in Relation to Literature and Art (2 cred.; soph., jr., sr.; no prereq.) V MW Heller
- Classics 106f-107w. Introduction to the Study of Language (3 cred. per qtr.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language) VIII MWF Swanson
- Classics 108s. Cultural Aspects of Language (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language) VIII MWF Swanson
- Classics 191f,192w,193s. Classical Literary Traditions. Readings from classical literature, with lectures on the origin of literary forms and their traditions in European literature. Topics include: (fall) epic, didactic, choral and personal poetry; (winter) drama and dramatic prose (dialog); (spring) expository and narrative prose including the novel, literary criticism (3 cred. per qtr.; jr., sr., grad.; prereq. 9 cred. in literature, English (beyond A-B-C) or foreign literature) V MWF Ar.

COMMUNICATION

See General Studies, page 61.

COMPOSITION

See English, page 58.

DRAWING AND DESCRIPTIVE GEOMETRY

Junior College Courses

- 44f,w,s. Lettering. A practical course in plain lettering (1 cred.; no prereq.) IV T Ar.
- 45f,w,s. Alphabets. Construction and analysis of classic and modern roman, italic, script, and gothic styles, including Old English. Exercises in composition. Reference work (2 cred.; soph., jr., sr.; prereq. 44) III TS Ar.

Many of the courses which were previously listed under Drawing and Descriptive Geometry are now included in the Department of Art. (See page 30.) Other courses offered by this department and listed in the *Bulletin of the Institute of Technology* are open to students of this college only by special permission of the Students' Work Committee.

* Since the authors to be read vary from time to time and from year to year, this course may be repeated for credit.

¶ Students may enter any quarter.

ECONOMICS

School of Business Administration

Courses in economics are available to Science, Literature, and the Arts students and may be applied toward an Economics major or minor for a degree from this college. Students contemplating graduate work in the field and those desiring a four-year liberal arts program may prefer this arrangement.

Those wishing to specialize in business administration will transfer after two years to the School of Business Administration. For the prerequisites for entrance into the latter school, see page 139 of this bulletin, and for the B.A. course offerings, see the *Bulletin of the School of Business Administration*.

Major advisers in the College of Science, Literature, and the Arts—Professor Garver; Associate Professor Myers.

Major sequence in the College of Science, Literature, and the Arts—A student majoring in economics is required to earn at least 30 credits in Senior College courses as follows: (1) required courses: Economics 103-104, 142, 161; (2) at least 6 credits from Economics 105, 106, 149, 176, 191-192, 195; (3) at least 6 credits from Economics 110, 155, 172, 175, 185; and (4) 6 additional credits from any Senior College economics courses listed in this bulletin. Students who expect to take postgraduate work in business or economics in this or another university are advised to include in their program the following courses: Economics 5 and 121-122-123 in statistics; and Economics 22-23 in accounting.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

(Prerequisites: Economics 3 and 6-7. In addition the student is urged to earn at least 9 credits in History, Political Science, or Sociology.)

Honors course—Students whose records show that they are capable of doing better than average work, and who wish to study for graduation honors or to pursue a special interest should consult a major adviser for modification of the sequential requirements.

Junior College Courses

- 1f-2w.† Business History. A historical examination of the development of the chief kinds of business activity; the organization of production, transportation and marketing; changes in technique; and government policies affecting business enterprise. The course will be mostly European and American in scope, but significant developments in other continents will be surveyed (10 cred.; fr., soph.; no prereq.) Lect. III TTh Heaton and others; rec. sections as follows: I TThS, II MWF, III MWF, IV MWF, V MWF, VI MWF, VII MWF, VIII MWF, IX MWF
- 3f. Elements of Money and Banking. The basic principles of money and a description of the various types of financial institutions, their functions and relations to the whole economic organization (5 cred.; 2nd and 3rd qtr. fr., soph.; no prereq.) Lect. VII TTh Stehman and others; rec. sections as follows: I MWF, I TThS, II TThS, III TThS, IV MWF, IV TThS, V MWF, VI MWF, VII MWF, VIII MWF, IX MWF
- 3s. Elements of Money and Banking (See 3f) Lect. III TTh Stehman and others; rec. sections as follows: I TThS, II MWF, II TThS, III MWF, IV MWF, IV TThS, V MWF, VI MWF, VII MWF, VIII MWF
- 5f.* Elements of Statistics. Elementary concepts in statistical method; averages, ratios, errors, sampling, index numbers, graphic representation, collection of material (5 cred.; soph.; no prereq.) Lect. II F Kozelka and others; rec. sections as follows: I MTWTh, II MTWTh, III MTWTh, IV MTWTh, V MTWTh, VI MTWTh, VII MTWTh, VIII MTWTh, IX MTWTh
- 5w.* Elements of Statistics (See 5f) Lect. II F Kozelka and others; rec. sections as follows: II MTWTh; IV MTWTh; VI MTWTh; VIII MTWTh
- 5s.* Elements of Statistics (See 5f) Lect. II T Kozelka and others; rec. sections as follows: I MWThF, II MWThF, III MWThF, IV MWThF, V MWThF, VI MWThF, VII MWThF, VIII MWThF, IX MWThF

* Not open to students who have received credit in Soc. 45 or B.A. 70.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

- 6f-7w.† Principles of Economics. A course in the fundamental principles of economics intended to serve as a foundation for advanced courses in business administration and economics (10 cred.; soph., jr., sr.; no prereq.) Lect. I TTh; rec. sections as follows: I MWF, II MWF, II TThS, III MWF, III TThS, IV MWF, IV TThS, V MWF, VI MWF, VII MWF, VIII MWF
- 6w-7s.† Principles of Economics (See 6f-7w) Lect. VII TTh; rec. sections as follows: I MWF, I TThS, II MWF, II TThS, III MWF, III TThS, IV MWF, IV TThS, V MWF, VI MWF, VII MWF, VIII MWF
- 6s. Principles of Economics (1st qtr. of 6-7. See 6f-7w) I MTWThF Ar.
- 7f. Principles of Economics (2nd qtr. of 6-7. See 6f-7w) Lect. IV TTh; rec. sections as follows: I MWF, II TThS, IV MWF, VI MWF, VIII MWF
- 22f-23w.§ Principles of Accounting. 22: The balance sheet, profit and loss statement, the recording process, special journals and ledgers, adjustments, work sheets, closing, and the voucher system; 23: Partnership, profit-sharing, dissolution, corporation accounting—stock capital surplus, dividends, reserves, funds, bonds, departmental accounting, branch accounting, manufacturing statement analysis and interpretation (8 cred.; soph., jr., sr.; no prereq.) Lect. II T Heilman and others; rec. sections as follows: I MWF, I TThS, II MWF, II TThS, III MWF, III TThS, IV MWF, IV TThS, V MWF, VI MWF, VII MWF, VIII MWF
- 22w-23s.§ Principles of Accounting (See 22f-23w) Lect. VI T Heilman and others; rec. sections as follows: I MWF, II MWF, II TThS, III MWF, III TThS, IV MWF, VI MWF, VII MWF, VIII MWF
- 27s.§ Accounting Survey. A course designed for prelaw and law students. Special emphasis on accounting for corporations and for income (5 cred.; open to prelaw and law students only; no prereq.) II MTWThF; VIII MTWThF
- 32f.‡ Beginning Typewriting (1 cred.; fr., soph., jr., sr.; no prereq.) I MTWThF; II MTWThF; VI MTWThF Donaldson and others
- 32w.‡ Beginning Typewriting (See 32f) I MTWThF; IV MTWThF; VII MTWThF Donaldson and others
- 32s.‡ Beginning Typewriting (See 32f) III MTWThF; VI MTWThF Donaldson and others
- 33f.***‡ Intermediate Typewriting (1 cred.; soph., jr., sr.; prereq. 30 words per minute; VII MTWThF Donaldson and others
- 33w,s.***‡ Intermediate Typewriting (See 33f) IV MTWThF; VII MTWThF Donaldson and others
- 34f,w.***‡ Typewriting Procedures. This course provides problem situations requiring judgment, speed and accuracy in typing manuscripts, office forms and legal documents; in duplicating and in machine transcribing (2 cred.; soph., jr., sr.; prereq. Econ. 33 or equiv. and a speed of 45 words per minute) VII MTThF and VIII T Donaldson and others
- 34s.***‡ Typewriting Procedures (See 34f) IV MTThF and V T Donaldson and others
- 37f-38w-39s.††§§ Beginning and Intermediate Shorthand (9 cred.; soph., jr., sr.; prereq. Econ. 33 or consent of instructor) II MTWThF; III MTWThF Donaldson and others
- 37w-38s.††§§ Beginning and Intermediate Shorthand (1st and 2nd qtrs. of 37-38-39. See 37f-38w-39s) II MTWThF Donaldson and others
- 40f-41w.†† Secretarial Procedure (6 cred.; soph., jr., sr.; prereq. Econ. 34 and 39 and consent of instructor) III MTWThF Donaldson and others
- 42s.‡ Advanced Secretarial Procedure (3 cred.; jr., sr.; prereq. Econ. 41) I MWF and VII-VIII Th Donaldson and others

Senior College Courses

- 50f. Insurance Principles. An introductory course dealing with the nature and measurement of risk and the development and uses of personal, property, and liability insurance. Forms of protection; policy contracts; social insurance and government regulation (3 cred.; jr., sr.; prereq. Econ. 6-7 or 83) IV TThS Graves; VIII MWF Ar.
- 50w,s. Insurance Principles (See 50f) IV TThS; VIII MWF Graves
- 62.**¶ *Competition and Monopoly in Modern Industry*. A nontechnical analytical course for Senior College students, with special emphasis on questions of economic policy. It is devoted to national income, the pattern of consumption, the effects of competition and monopoly on prices and the allocation of resources, and labor unions (3 cred.; jr., sr.; no prereq.) (*Not offered*)

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$2.50 a quarter is charged students registering for one or more of these courses.

§ Not open to students who have received credit in 20, 25-26, or 22-23 or 27.

¶ This course may not be included as a part of the Senior College work required for a minor in economics in the College of Science, Literature, and the Arts.

** Not open to students who have received credit in Econ. 6-7.

§§ Students who have had one year of high school shorthand are admitted to Econ. 38; those who have had two years of high school shorthand are admitted to Econ. 39.

*** No credit will be granted for Econ. 33 until Econ. 34 is completed.

- 63.**¶ *Money, Cycles, and Taxation.* A nontechnical analytical course for Senior College students, with special emphasis on questions of economic policy. The money and banking system, fluctuations in business, and proposed remedies; government expenditures and revenues (3 cred.; jr., sr.; prereq. Econ. 62) (*Not offered*)
- 80f-81w.* *Intermediate Economic Analysis.* The development and the application of methods of economic analysis to problems of price and production under conditions of competition, monopoly and monopolistic or imperfect competition (6 cred.; jr., sr.; prereq. 20 cred. in social science including Econ. 6-7 or equivalent) I MWF; II TThS; IV TThS; VI MWF; VIII MWF Papandreou and others
- 80w-81s. *Intermediate Economic Analysis* (See 80f-81w) II MWF; III MWF; VII MWF
- 84s. *Comparative Economic Systems.* The modified system of individualism; state socialism; communism; fascism; freedom and the economic order. Emphasis is placed not upon historical development, but upon the vital economic functions to be achieved under any economic system and a critical analysis of the ability of the various systems to perform these functions (3 cred.; jr., sr.; prereq. Econ. 6-7 or equiv.) III TThS Garver
- 97f,98w,99s. *Honors Course in Economics* (Cred. ar.; jr., sr.; prereq. consent of major advisers) Ar. Ar.
- 103f-104w.*† *Advanced Economic Theory.* An advanced course in general economic theory with special emphasis on the systematic development of the tools of modern economic analysis (6 cred.; jr., sr. with honor point ratio of 2 or better, grad.; prereq. 20 cred. in social science including Econ. 6-7 or equiv.) VII MWF Ar.
- 105s. *History of Economic Ideas: The Classical Economists.* The development of the doctrines of classical economics by English and French writers from 1750 to 1850. Economic and political influences giving rise to doctrines of population, distribution, governmental interference (3 cred.; jr., sr., grad.; prereq. Econ. 80-81 or Econ. 103-104 or consent of instructor) VII MWF Garver
106. *History of Economic Ideas: The Critics of the Classical Economists.* A survey of the leading critics of the classical economists, including the German Historical School, the institutionalists, the statistical economists, the welfare economists, and the theoretical socialists. The methodology of neo-classical economics is also studied (3 cred.; jr., sr., grad.; prereq. Econ. 80-81 or Econ. 103-104 or consent of instructor) (*Not offered*)
- 110s. *Industrial Price Control.* The subject is the methods by which the prices of industrial products are determined under actual competitive conditions (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv. and 15 additional credits in economics and/or business administration. Econ. 155 is a desirable preceding course) IV MWF Garver
- 111f. *City Planning* (Same as Architecture 104, Political Science 123, and Sociology 106) General survey of the economic, governmental, social, and technical phases of city planning and group housing (3 cred.; prereq. senior or graduate standing) III MWF Jones, Anderson, Filipetti, Vaile, Sletto
- 121f-122wf-123s. *Theory of Statistics.* An advanced course in statistical analysis, covering methods of statistical description and the theory of sampling (9 cred.; jr., sr., grad.; prereq. Econ. 5 or equiv.) I MWF Mudgett
124. *Comparative Banking: British Systems.* A study of the existing financial institutions of the various members of the British Empire with regard to development, functions, methods, and problems. Constant comparison is made with the American system (3 cred.; jr., sr., grad.; prereq. Econ. 142) (*Not offered*)
- 126s. *Economic Problems of Latin America.* The development of economic resources; influence of foreign economics; organization for production; state of the industrial arts; domestic markets and transportation; government finance; present tendencies in respect to economic progress, economic security, and social control (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) II MWF Myers
- 127w. *Comparative Banking: South American Systems* (3 cred.; jr., sr., grad.; prereq. Econ. 142) IV MWF Myers
- 140w. *The Cooperative Movement.* The history and philosophy of various cooperative developments. Similarities and contrasts between such movements as agricultural marketing cooperatives, consumer cooperatives, trade unions, and others. Consumer cooperation as a medium for economic control (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) VI MWF Canoyer
- 142f. *Monetary and Banking Policy.* An advanced course in money and banking. Banking policy viewed from the social standpoint with primary reference to the problems of the Federal Reserve system. Selected problems in monetary policy; monetary reconstruction and monetary reform (3 cred.; jr., sr., grad.; prereq. Econ. 3 and 6-7) I MWF; IV TThS; VII MWF Myers, Upgren and others

* No credit may be received for both Econ. 80-81 and Econ. 103-104.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ This course may not be included as a part of the Senior College work required for a minor in economics in the College of Science, Literature, and the Arts.

** Not open to students who have received credit in Econ. 6-7.

- 142w. Money and Banking Policy (See 142f) III TThS; IV MWF Myers, Upgren, and others
- 142s. Money and Banking Policy (See 142f) II TThS, IV MWF, IV TThS Ar.
- 149f. Business Cycles. Analysis of factors involved in business fluctuations. Comparison of theories of the cause of prosperity and depression. Examination of proposals for the reduction or elimination of cycles. Introduction to the statistical data and methods of business forecasting (3 cred.; sr., grad.; prereq. Econ. 142 or consent of instructor) IV MWS Upgren
- 149w. Business Cycles (See 149f) III MWF Ar.
- 149s. Business Cycles (See 149f) III TThS Upgren
- 155f. Corporation Finance. Incorporation. The various types of corporate securities and their uses. Financial plans for industrial, utility, and other types of corporations. Financial affairs of an established business. General financial problems of the holding company, consolidations, mergers, and reorganizations (3 cred.; jr., sr., grad.; prereq. Econ. 3 and 6-7) III MWF; IV TThS; VIII MWF Stehman and others
- 155w. Corporation Finance (See 155f) II MWF; III TThS; VII MWF Stehman and others
- 155s. Corporation Finance (See 155f) II MWF; VI MWF; IV TThS Stehman and others
- 161f. Labor Problems and Trade Unionism. A discussion of employment, hours, wages, types of unionism, policies and practices of labor organizations; special emphasis upon economic implications of modern working conditions (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) Lect. I MW Yoder and others; rec. sections as follows: I Th; II F; IV T; VII F; VIII T
- 161w. Labor Problems and Trade Unionism (See 161f) Lect. VII TTh; rec. sections as follows: I M; II S; IV F; VII Th; VIII T
- 161s. Labor Problems and Trade Unionism (See 161f) Lect. I MW; rec. sections as follows: I Th; II M; IV T; VII Th; VIII T
- 162w. Labor and Socialist Movement. Analysis of structure and operation of American labor unions. An interpretation of leading labor movements in Europe and the United States during the last century (3 cred.; jr., sr., grad.; prereq. Econ. 161) I MWF; VII MWF Yoder and others
- 162s. Labor and Socialist Movements (See 162w) VI MWF Yoder and others
- 164s. Labor Legislation and Social Insurance. A course dealing with the economic aspects of labor legislation, including minimum wage laws; hours legislation; factory acts; accident, health, old age, and unemployment compensation; mothers' pensions (3 cred.; jr., sr., grad.; prereq. Econ. 161) III TThS; VIII MWF Yoder and others
- 172f. Economics of Transportation. An analysis of the economics of the agencies of modern transportation, including rail, water, highway, air, and pipe line. Relative advantage of each agency, national transportation policy, regulation, rate-making, taxation, coordination of services (3 cred.; jr., sr., grad.; prereq. 20 cred. in soc. sci. including Econ. 6-7 or equiv.) II MWF Nightingale
- 175f. Government Regulation of Business. A general course on the economic aspects of legislation affecting the pricing process and the distribution of the national income. Topics studied include economic origins of modern business limitations on free competition; regulation of public utilities, trusts and combinations, and "unfair competitive practices"; positive assistance to industrial groups (3 cred.; jr., sr., grad.; prereq. 20 cred. in soc. sci. including Econ. 6-7 or equiv.) I MWF; III MWF; VI MWF Garver, Papandreou, and others
- 175w. Government Regulation of Business (See 175f) I MWF; IV MWF; VII MWF Garver, Papandreou, and others
- 175s. Government Regulation of Business (See 175f) I MWF; II TThS; III MWF Garver, Papandreou, and others
- 176f,s. International Commercial Policies. Theory of international commerce; protective tariffs, free trade, reciprocity, subsidies, preferential treatment, the open door, international finance, commercial treaties, foreign politics, and other governmental and organized efforts to affect trade. American problems emphasized (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) II MWF Upgren
- 178w. Economics of Consumption. A descriptive and analytical survey of the price-making process; the origins and the personal distribution of money income and purchasing power; planes of living in the United States; "ideal" standards of living; possibilities for improvement in the plane of consumption (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.; not open to majors in economics or business administration) II MWF Canoyer
- 179s. Economic Problems of the Far East. A survey of recent economic developments in the Far East, especially in China and Japan. The ways in which these developments illustrate and are governed by economic principles are examined. Economic regionalism, problems of population and migration, the control of raw materials, industrial efficiency, internal economic institutions, and international commercial policies, as they occur in the Far East, are among the topics discussed (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) VI MWF Vaile

- 185w.* Economics of Marketing. A course dealing with (1) the role of market distribution in our total economy; (2) the costs of market distribution; (3) regional specialization and market distribution; (4) public, quasi-public, and corporate control of market distribution; (5) the role of the consumer in market distribution (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) VII MWF Vaile
- 186w. International Economic Relations (3 cred.; jr., sr., grad.; prereq. 176) II MWF Uppgren
- 189f.** Principles of Taxation. Development of taxation; property, income, commodity, sales, inheritance, and other taxes; shifting incidence and other effects; federal, state, and local relations; special problems (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) III MWF Borak
190. *National Income Analysis* (3 cred.; jr., sr., grad.; prereq. 20 cred. in Econ. or business administration) (*Not offered*)
- 191f-192w.†** Public Finance. Public expenditures, revenues, debts, fiscal policy, and financial administration. Special attention is given to tax principles, practices, and burdens (6 cred.; jr., sr., grad.; prereq. Econ. 6-7 or equiv.) III MWF Heller
- 193s. State and Local Taxation. Main problems of state and local finance and proposed solutions, including coordination of national, state, and local fiscal policy and administration (3 cred.; jr., sr., grad.; prereq. Econ. 189, 191-192 or B.A. 58) III MWF Borak
- 195s. Fiscal Policy (3 cred.; sr. with consent of instructor, grad.; prereq. 20 cred. in soc. sci. including B.A. 58 and Econ. 142 or equiv.) IV TThS Heller

Courses Open to Graduate Students Only

- 203f-204w. Seminar in Economic Theory (6 cred.; grad.) VIII½-IX TTh Garver
- 206s. Seminar in Market Prices (3 cred.; grad.) VIII½-IX TTh Vaile
207. *Theory of Demand* (3 cred.; grad.) (*Not offered*)
208. *Production and Distribution* (3 cred.; grad.) (*Not offered*)
209. *Seminar in Theory of Monopolistic Competition* (3 cred.; grad.) (*Not offered*)
- 233f-234w. Seminar in Public Finance (6 cred.; grad.) VII-VIII½ F Heller
- 243w-244s. Seminar in Money and Banking (6 cred.; grad.) VIII½-IX MW Uppgren
- 251s. Seminar in Industrial Relations (3 cred.; grad.) VII-VIII½ MW Yoder
257. *Seminar in Accounting Theory* (3 cred.; grad.) (*Not offered*)
- 258w. Seminar in Accounting (3 cred.; grad.) VII-VIII½ TTh Ostlund
- 281s. Seminar in Industrial Management (3 cred.; grad.) VII-VIII½ TTh Filipetti

EDUCATIONAL PSYCHOLOGY

The following courses in Educational Psychology, offered by the College of Education, are regularly open to students in the College of Science, Literature, and the Arts:

- 60f. Introduction to Measurement and Statistics. This course includes a study of measures of central tendency, variability, and correlation as well as principles of test construction (2 cred.; jr., sr.; prereq. 6 cred. in psy.) IV TThS Van Wagenen
- 60s. Introduction to Measurement and Statistics (3 cred.; jr., sr.; prereq. 6 cred. in psy.) II MWF Van Wagenen
- 120f,w,s. Basic Principles of Measurement. Principles of measurement applied to the construction and evaluation of tests and to the interpretation of scores. Illustrations from achievement, intelligence, interest, attitude, and personality tests. Each student will have an opportunity to construct an examination in the field of his major interest (3 cred.; jr., sr., grad.; prereq. Ed.Psy. 60 or equiv.) VII MWF Cook
- 140w. Instruments and Techniques of Measurement. An intensive study of selected instruments for measuring intelligence, achievement, interests, attitudes, and personality traits with emphasis upon their use in educational guidance, personnel work, administration, and supervision. Laboratory practice two hours per week (3 cred.; sr., grad.; prereq. Ed.Psy. 120 or equiv.) VII-VIII TTh Cook
- 141w. Group Aptitude Testing. A study of group aptitude tests for all school levels with special emphasis on their reliability and validity as instruments for educational and vocational guidance (3 cred.; sr., grad.; prereq. Ed.Psy. 120 or equiv.) VII MWF Ar.
- 142f,w,s. Individual Aptitude Testing. A study of methods and practice in the administration of individual mental tests (3 cred.; sr., grad.; prereq. Ed.Psy. 120 or equiv.) VIII MWF(f,w), VII MWF(s) Bond

* Credit may not be received for both Econ. 185 and B.A. 77.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

** Credit may not be received for both Econ. 189 and either B.A. 58 or Econ. 191-192.

ENGLISH

For Composition, see page 58.

Major advisers in the College of Science, Literature, and the Arts—Professor Hornberger; Associate Professor Jackson; Assistant Professors Buckley, Clark, Montgomery, and Moore.

Major sequence in the College of Science, Literature, and the Arts—A total of at least 31 credits for the entire sequence, comprising the following:

A. Courses 75, Chaucer; 55-56, Shakespeare; 62, Milton.

B. Eighteen additional credits in Senior College courses, of which at least twelve must be from courses numbered 100 or above.

(Prerequisites: 1. Courses 21-22 or 22-23. 2. *Either* (a) three units in one foreign language, *or* (b) two units in *each* of *two* foreign languages, a unit being either one year in high school or five credits in college.)

The Department regards the knowledge of foreign languages, and especially of Latin, French, and German (in that order), as of particularly high value to students of the English language and English literature, and especially urges students planning to major in English to include as much foreign language study in their programs as possible.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major advisers in the College of Education—Professor Dora Smith and Assistant Professor Allen.

Requirements for a teacher's certificate—

a. English as a major subject in the College of Education:

English 22-23. Introduction to Literature	10
English 55-56. Shakespeare	6
English 73-74. American Literature	6
English 165. Introduction to Modern English	3
Composition 27-28. Advanced Writing	6
Speech	6
Additional credits in courses numbered 100 or above	3

Total credits

40

b. English as a minor subject in the College of Education:

English 22-23. Introduction to Literature	10
English 55-56. Shakespeare	6
English 73-74. American Literature	6
Composition 27-28. Advanced Writing	6

Total credits

28

Education students who major in English are required to take Ed.C.I. 122, Literature for Adolescents.

Junior College Courses

A-B-C. Freshman English. A combined course in literature and composition. The composition is equivalent to that in Composition 4-5-6 and meets the requirements for graduation. The reading consists of novels, short stories, plays, and poetry, both English and American, and is organized by quarters as follows: Reading for story, reading for character, reading for idea. See Composition, page 58.

21f-22w-23s.** Introduction to Literature. A chronological study of English literature with its historical background. An introduction to types of literature and literary ideas. 21f: The Renaissance and the Rise of Puritanism. Marlowe, Spenser, Bacon, Browne, Milton, and Bunyan; 22w: The Restoration and the Eighteenth Century. Dryden, Pope, Swift, Addison and Steele, Johnson, Boswell, Field-

** Students may enter any quarter. Two quarters are prerequisite for a major sequence; the second and third quarters are required for a teacher's certificate. Three quarters are recommended.

ing, and Sheridan; 23s: The Romantic Movement and the Victorians. Wordsworth, Byron, Shelley, Keats, Lamb, Carlyle, Browning, and Arnold (15 cred.; prereq.*) III MTWThF Jackson; VI MTWThF Moore

22w-23s. Introduction to Literature (2nd and 3rd qtrs. of 21-22-23 (See 21f-22w-23s.) VII MTWThF Montgomery

Classics 24s. Technical Terms of Science, Medicine, and the Humanities. Presentation in vivid English contexts of Greek and Latin prefixes, suffixes, and root words basic in modern technical vocabularies (3 cred.; soph., jr., sr.; no prereq.) Lect. IV MW Heller; rec. V F Swanson

Classics 31f,32w.¶ Greek and Latin Drama in English. Representative tragedies and comedies of the Greek and Latin dramatists. Lectures on the origin and development of the ancient drama and its relation to modern drama (2 cred. per qtr.; soph., jr., sr.; no prereq.) IV MW Ar.

37f-38w-39s.¶ Twentieth-Century Literature. Readings in British and American literature since the 1890's, arranged by types of discourse—37f: The literature of opinion, biography, travel, etc., with some reading in the short story; 38w: Poetry and drama; 39s: The novel since Thomas Hardy. This course is a general introduction to the intelligent reading of literature, and is intended for students in all colleges, and not particularly for those meaning to specialize in English (9 cred.; soph., jr., sr.; prereq.*) VII MWF O'Connor

Classics 43s. Ancient Mythology in Relation to Literature and Art. Traditional stories (myths) as the framework for artistic narrative and as providing convenient symbols for the communication of meaning in literature and art; uses of and attitudes towards myth in classical antiquity and in modern times. Lectures and the study of a text (2 cred.; soph., jr., sr.; no prereq.) V MW Heller

45. *American Life in American Literature*. This course is intended for students in all colleges, and not particularly for those who mean to specialize in English (3 cred.; soph., jr., sr.; prereq.*) (*Not offered*)

Attention of students is called to Humanities 1-2-3, 11-12-13, and 21-22-23 (page 61).

Senior College Courses

Courses 52-53, 54, 55-56, 62, 66-67, 73-74, and 75 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

52f-53w.¶ The English Novel. 52f: The reading of novels by Defoe, Fielding, Jane Austen, Scott, Thackeray, Dickens; 53w: The reading of novels by Charlotte and Emily Brontë, George Eliot, Trollope, Meredith, Hardy (6 cred.; jr., sr.; prereq.§) VII MWF Moore(f), Erdman(w)

54s. Morris, Pater, and Shaw. Emphasis on the estheticism of Pater and the social criticism of Morris and Shaw (3 cred.; jr., sr.; prereq.§) IV MWF Phelan

55f-56w.** Shakespeare. 55: The reading of selected comedies—*A Midsummer Night's Dream*, *The Merchant of Venice*, *Much Ado about Nothing*, *Twelfth Night*, *Measure for Measure*, *The Tempest*. These plays are to be read in all sections. Others may be read at the discretion of the instructor. 56: The reading of selected histories and tragedies—*Richard II*, *Henry IV*, 1 and 2, *Henry V*, *Julius Caesar*, *Hamlet*, *Othello*, *Macbeth*. These plays are to be read in all sections. Others may be read at the discretion of the instructor (6 cred.; jr., sr.; prereq.§) I TThS Hessler(f) Atkins(w); II TThS Ar.; VI MWF Buckley; VII MWF Dunn; VIII MWF Christie

55w-56s.** Shakespeare (See 55f-56w) II TThS Moore; III TThS Atkins; VI MWF Ar.(w) O'Connor(s); VIII MWF Turpie

55s. Shakespeare (1st qtr. of 55-56. See 55f-56w) I TThS Atkins; VI MWF Buckley; VII MWF Christie; VIII MWF Montgomery

56f.** Shakespeare (2nd qtr. of 55-56. See 55f-56w) II MWF Montgomery; II TThS Moore; VI MWF Turpie

62f. Milton. The minor poems, *Areopagitica*, *Paradise Lost*, and *Samson Agonistes* (3 cred.; jr., sr.; prereq. 21-22 or 55-56) IV MWF Dunn

62w. Milton (See 62f) II MWF Brown

62s. Milton (See 62f) VI MWF Dunn

* English A-B-C or Composition 4-5-6 or Communication 1-2-3, or exemption from requirement.

§ Composition 4-5-6 or Communication 1-2-3, and 6 additional credits; or English A-B-C; or 10 credits in 21-22-23.

¶ Students may enter any quarter.

** Students should not start with 56 except by permission of instructor.

- 66w-67s.¶ The Literature of the Bible (formerly 40-41, The Bible as Literature). Readings in the Old and New Testaments from the literary point of view. Old Testament: Selections from the historical narratives, the prophets, psalms, tales, wisdom literature. New Testament: Selections from the Gospels and Epistles (6 cred.; jr., sr.; prereq.*) IV MWF Dunn
- 73f-74w.¶ American Literature. Notable American authors from Jonathan Edwards to John Steinbeck (6 cred.; jr., sr.; prereq.*) II MWF McDowell; VII MWF H. N. Smith
- 75f.s. Chaucer. The reading of selections from the *Canterbury Tales* with introduction dealing with the grammar and literary forms of fourteenth-century English (4 cred.; jr., sr.; prereq.*) III MTWF Atkins(f), Dunn(s)
- 75w. Chaucer (See 75f) VII MTWF Armstrong
- 97f-98w-99s. Independent Reading Course. Each student chooses his readings in conference with the instructor (9 cred.; jr., sr.; prereq. permission of instructor. Registration limited to 10 students) Ar. Ar. Hessler(f), Ar.(w,s)

Note on prerequisites: The words "6 cred. in English literature above A-B-C" should be interpreted to mean "6 cred. in courses in literature in this department, exclusive of Classics and A-B-C."

- 100f. Old English (Anglo-Saxon). An introduction to the sounds and grammar with some prose reading. The relation to Modern English is stressed (4 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) II TWThF Clark
- 102w. Readings in Old English Prose and Verse. Critical reading of texts, and introduction to versification (3 cred.; jr., sr., grad.; prereq. 100) II MWF Clark
- 103s. Beowulf. An introduction to the Old English poem, with reading of considerable portions of the text (3 cred.; jr., sr., grad.; prereq. 100) II MWF Clark
- 109w-110s.¶ Romantic Poets of the Early Nineteenth Century. 109w: Wordsworth, Coleridge, Scott, etc.; 110s: Byron, Shelley, Keats, etc. (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) II TThS Erdman
- 113s. American Short Story. A historical examination of the American short story from the eighteenth century to the present (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) I MWF McDowell
114. *The Midwest in Literature* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 115-116. *The Development of English Prose Style*. 115: Definition of six broad types of prose style on historical principles; sketch of the history of English prose styles from the earliest times to 1700. 116: Studies in the styles of selected writers since 1700 (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
117. *American Essay* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 118w-119s. Nineteenth-Century Prose. 118w: The literature of social criticism: Carlyle, Ruskin, Arnold, and others; 119s: Literature concerned largely with science and religion: Newman, Huxley, Spencer, Butler, and others. (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C or consent of instructor) VI MWF Erdman
- 120f-121w. The Interpretation of Poetry. A study of certain technical aspects of poetry in relation to poetic meaning. 120f: Analysis of a number of short poems. 121w: Emphasis on Coleridge, Housman, Frost, and Eliot. See also Composition 104s (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) VI MWF Warren
- 123f-124w. The Technique of the Novel. Special studies in novels of the late nineteenth and twentieth centuries, with particular regard to structure (6 cred.; sr., grad.; prereq. 6 cred. in English literature above A-B-C and permission of instructor) IX-X T Warren
- 126f-127w. Drama, 1660-1870. The History of English drama from the opening of the theaters in 1660. 126f: The Restoration and the early eighteenth century. The heroic play, tragedy, comedy of manners, beginnings of sentimental comedy. 127w: The development of sentimentalism in the eighteenth century. The reaction: Goldsmith and Sheridan. Early nineteenth-century drama (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) IV MWF Hillhouse
- 129s. Modern Drama, 1880 to the Present. A survey of the chief dramatists, English, American, and Continental, from the time of Ibsen (3 cred.; jr., sr., grad.; prereq. 55-56 or 126-127) VI MWF Hillhouse
- 130f-131w. English Poetry, 1832 to 1914 (6 cred.; jr., sr., grad.; prereq. 6 cred. in English Literature above A-B-C) VI MWF Montgomery
133. *Ballads* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 134f. The Origins of American Naturalism (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) VI MWF Bowron

* Composition 4-5-6 or Communication 1-2-3, and 6 additional credits; or English A-B-C; or 10 credits in 21-22-23.

¶ Students may enter either quarter.

135. Spenser. Selections from the minor poems; *The Faerie Queene*; attention to classical and foreign influence on Spenser and his influence on later English poets (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 136s. Advanced Shakespeare. The work of the poet's maturity. Special attention to *Othello*, *King Lear*, *Antony and Cleopatra*, *Cymbeline*, *The Winter's Tale* (3 cred.; jr., sr., grad.; prereq. 55-56) VI MWF Brown
- 137-138-139. *The Nineteenth Century in English Literature*. Prose and poetry, but mostly prose, to be read mainly as illustrating the history of ideas. (9 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 140w. Advanced Chaucer. The more important poems apart from the *Canterbury Tales*. The treatment will be primarily literary and historical, linguistic proficiency being presumed (4 cred.; jr., sr., grad.; prereq. 75) VI MTWF Clark
- 147-148-149. *The Literature of England in the Middle Ages Exclusive of Chaucer*. Reading includes Anglo-French and Latin documents in translation; special attention to the period from the Norman Conquest to 1500 (9 cred.; jr., sr., grad.; prereq. 75) (*Not offered*)
- 151s. Recent Poetry. The development of twentieth-century poetry in England and America. Yeats, Hardy, Housman, Robinson. Movements in the second decade—Georgians, Imagists, etc. Lawrence, Sandburg, Frost, Eliot, Jeffers, younger poets (4 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) IV MTWF Jackson
152. *Medieval and Early Elizabethan Drama*. Selected mystery and morality plays and farces; *Ralph Roister Doister*, *Gammer Gurtons Needle*; Kyd, Marlowe, Lyly, Greene, Peele (3 cred.; jr., sr., grad.; prereq. 55-56) (*Not offered*)
- 154w-155s. American Novel. The history of the American Novel from the beginning to the present (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) III TThS Bowron
- 156s. American Drama. (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) III MWF Hornberger
- 157f-158w. Elizabethan Non-Dramatic Literature. 157: Tudor prose: "courtesy books" (Eliot, Ascham), voyages (Drake, Raleigh), criticism (Gascoigne, Sidney and others), fiction (Lyly, Sidney, Nashe), history (More, Fox, Holinshed, and others), tracts and essays (Nashe, Bacon and others). 158: Tudor lyric and narrative poetry. (6 cred.; jr., sr., grad.; prereq. 6 cred. in English Literature above A-B-C) VI MWF Brown
- 159f-160w. Colonial Literature in America (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) III MWF Hornberger
161. *Scientific Thought in American Literature*. A study of the influence of science on the thought and writing of major American authors, including Franklin, Jefferson, Cooper, Poe, Emerson, Whitman, Holmes, Henry Adams, and Dreiser (3 cred.; jr., sr., grad.; prereq. 6 cred. in English Literature above A-B-C) (*Not offered*)
- 163-164. *Restoration Drama* (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 165f,w. Introduction to Modern English (formerly The Historical Study of Modern English). The sounds and grammar, with some attention to syntax and vocabulary. Required of Education majors in English (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) VII MWF Allen
- 166s. Historical Backgrounds of Modern English. A study of those distinctive aspects of the sounds and grammar of Early Modern, Middle, and Old English which are significant for the language of the present day (3 cred.; jr., sr., grad.; prereq. 165) VII MWF Allen
- 167f-168w. English Literary Criticism. A historical sketch from Aristotle to Matthew Arnold, with special emphasis on issues which have some importance for modern criticism (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) II MWF O'Connor
169. *Browning and Tennyson* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 170f. Shakespeare's Later Contemporaries. Selected plays of Chapman, Jonson, Dekker, Marston, Webster, Heywood, Beaumont and Fletcher, Middleton, Ford, and Shirley (3 cred.; jr., sr., grad.; prereq. 55-56) II MWF Brown
- 171f-172w-173s. The Rise and Development of Standard English. An inductive study of English historical phonology, morphology, and syntax, with some attention to the lexicon and to the history of attitudes toward usage (6 cred.; sr. with consent of instructor; grad.; prereq. 100 or equivalent) VII-VIII T Allen
- 174s. American English. The development of a distinctive vocabulary and pronunciation of American English; differences between it and British English; dialects in the United States (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature, including language, above A-B-C) VI MWF Allen

† Students may enter either quarter.

- 175f-176w.¶ The History of English Verse. Origin and development of standard forms—ballad stanza, heroic couplet, blank verse, sonnet, etc. Discussion of metrical technique (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) IV MWF Jackson
- 179-180. *Social and Intellectual Backgrounds of American Literature* (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 181s. Recent Trends in Literary Criticism. Criticism and scholarship; criticism and esthetics; science and literature; imagination and myth; tradition and regionalism; isolation of the artist; debt to the metaphysicals, symbolists, and earlier American writers; political emphasis; experiments with language and form; re-examination of major critical terms; etc. (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) I MWF O'Connor
- 182s. The Far West in Literature. Expansion beyond the Mississippi as a force in American thought and letters: the literature of exploration and travel; the Pacific Coast regional movement; Mark Twain (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) II MWF H. N. Smith
- 183f. The Poetry of T. S. Eliot (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) II MWF Unger
- 184f-185w-186s. The Interpretation of Drama. Critical analysis of plays: Modern, Renaissance, and ancient (9 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C; 55-56 recommended) IX-X W Ar.
- 187f-188w-189s.¶ Eighteenth-Century Literature. Survey of English literature from 1700 to 1790. Parallel readings and critical essays. Graduate students will submit a term paper each quarter (9 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) II MWF Monk(f,w), Montgomery(s)
- 191f. Imagery and Symbolism in English and American Literature. A study of manifold literary influences, from the seventeenth century onward, upon T. S. Eliot and other twentieth-century writers (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) IV MWF Atkins
194. *Dr. Johnson and His Circle*. Particular attention to Boswell and to Johnson's influence on his contemporaries (3 cred.; jr., sr. with permission of instructor, grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 197f-198w-199s. Seventeenth-Century Literature. 197f-198w: A survey of the prose of the century down to 1660, with some consideration of the metaphysical and cavalier poets. 199s: Dryden and his contemporaries (9 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) III MWF Dunn(f,w), Monk(s)

Attention is also called to Classics 106, 107, 108, 191, 192, 193; German 73-74-75, 176, 177, 183; Italian 164; Scandinavian 161, 171, 172, 173, 195; Humanities 51-52-53, 61-62-63, 71-72-73.

For Graduate Students Only

- 256f-257w-258s. Spenser and Milton (9 cred.; grad.; prereq. 3 cred. above 50 in medieval or Eliz. lit. and 3, 1600-1660) IX-X T Brown
- 262f-263w-264s. Nineteenth Century Novel II (9 cred.; grad.) IX-X Th Hillhouse
- 265f-266w-267s. American Romanticism II (9 cred.; grad.; prereq. permission of instructor) IX-X F McDowell
- 274f-275w-276s. The Age of Queen Anne (9 cred.; grad.) IX-X M Monk
- 277f-278w-279s. American Realism (9 cred.; grad.; prereq. permission of instructor) IX-X F H. N. Smith(f), Hornberger(w,s)
- 281-282-283. *The Nineteenth Century* (9 cred.; grad.) IX-X W (*Not offered*)

COMPOSITION

Major advisers in the College of Science, Literature, and the Arts—Assistant Professors Atkins, Phelan, and Unger.

Major sequence in the College of Science, Literature, and the Arts—Courses 67-68; 69-70-71 or 81-82-83; 101-102-103; and 15 credits in Senior College courses in English to be chosen under the direction of a major adviser.

(Prerequisites: 1. Course 27 and two of the following: 28, 29, 65. 2. English 21-22 or 22-23. 3. *Either* (a) three units in one foreign language, *or* (b) two units in *each* of *two* foreign languages, a unit being either one year in high school or five credits in college.)

¶ Students may enter either quarter.

The Department regards the knowledge of foreign languages, and especially of Latin, French, and German (in that order), as of particularly high value to students of English composition, and especially urges students planning to major in Composition to include as much foreign language study in their programs as possible.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Important note—No student may register for any freshman course in composition or communication (see page 61) without having taken a placement test. Assignment to a particular course in composition or communication will depend on the student's record in the placement test.

Freshman English (English A-B-C) is a 15-credit course consisting of 9 credits of literature and 6 credits of composition. Composition 4-5-6 is a 9-credit course in composition, and Communication 1-2-3 is a 12-credit course in composition and speech. Any of these courses satisfies the requirement in English for graduation or for admission to the Senior College. Students who have already completed one or more quarters of freshman composition in another college should not take the placement test but should consult Professor Hillhouse, 219 Folwell Hall, before registering.

Any student who receives an A in composition in English A or B or in Composition 4 or 5 may, upon recommendation of his instructor, be exempted from any further requirement in English.

Any student who receives an A or B in Composition 4 or 5 may, upon recommendation of his instructor, elect the following quarter of English A-B-C.

Junior College Courses

- Af-Bw-Cs.** Freshman English. A combined course in literature and composition. The composition is equivalent to that in Composition 4-5-6 and meets the requirement for graduation. The reading consists of novels, short stories, plays, and poetry, both English and American, and is organized by quarters as follows: Reading for story, reading for character, reading for idea (15 cred.; prereq. placement test. Corresponds to G.E.D. Test No. 1. See page 23) I MTWThF; II MTWThF; III MTWThF; IV MTWThF; V MTWThF; VI MTWThF; VII MTWThF; VIII MTWThF
- Aw-Bs.** Freshman English (1st two qtrs. of A-B-C. See Af-Bw-Cs) I MTWThF
- Cf.** Freshman English (3rd qtr. of A-B-C. See Af-Bw-Cs) VI MTWThF
- 4f-5w-6s.** Freshman Composition. Practical training in the art of writing; the principles of structure, and analysis of specimens of good prose (9 cred.; prereq. placement test. Corresponds to G.E.D. Test No. 1. See page 23) I MWF; II MWF; III MWF; IV MWF; V MWF; VI MWF; VII MWF; VIII MWF
- 4w-5s.** Freshman Composition (1st two qtrs. of 4-5-6. See 4f-5w-6s) II TThS; III TThS; IV TThS; V MWF; VIII MWF
- 4s.** Freshman Composition (1st qtr. of 4-5-6. See 4f-5w-6s) III TThS; IV TThS; V MWF; VIII MWF
- 5f-6w.** Freshman Composition (2nd and 3rd qtrs. of 4-5-6. See 4f-5w-6s) I MWF
- 6f.** Freshman Composition (3rd qtr. of 4-5-6. See 4f-5w-6s) VII MWF; VIII MWF

Attention is called to Communication 1-2-3 (page 61).

- 7f,w,s.** Composition Review. A refresher course, including the reading of current magazines and the writing of themes; designed to review the basic principles of analysis and organization necessary to the writing of clear and logical exposition. Not to be confused with Comp. 27 (3 cred.; prereq. Comp. 4-5-6 or Communication 1-2-3; not open to students who have taken Eng. A-B-C) V MWF
Christie

NOTE—Composition 27-28-29: Advanced Writing. To receive credit for any part of this course, students must complete either 27-28 or 27-29. Both 27 and 28 are required of students in Journalism and of Education students with majors or minors in English. They may be taken in either order, but it is generally preferable to take 27 first. Students not required to take 28 may take 29 instead; and all students are at liberty to take all three quarters. Students not required to take 28 should take it if they wish a first course in description and narration; they should take 29 if they wish either a second course in description and narration (following 28) or further training in exposition. See descriptions below.

27f-28w. Advanced Writing. 27: A course in the writing of essays and articles, stressing adequate content, logical analysis and organization, and general interest and popular appeal. Not to be con-

- fused with Composition 7. 28: A course in the writing of description and narration, stressing methods and technique, particularly in simple narratives of general or technical interest: biography, travel, expanded incident, process, sketch (6 cred.; prereq. A-B-C or 4-5-6 or Communication 1-2-3 or exemption from requirement) I MWF O'Connor; II MWF Buckley; III MWF Christie(f), Cronin(w); IV MWF del Plaine; V MWF Ar.; VI MWF Engelhart; VII MWF Ar.; VIII MWF Ar.; I TThS Ar.; II TThS Bean; VI TTh and VII Th McLaughlin; VII TTh and VI Th Ar.
- 27w-28s. Advanced Writing (See 27f-28w) I MWF R. Smith; II MWF Ar.; III MWF Scallon; IV MWF Macdonald; VI MWF Charles Johnson; VII MWF Buckley(w), McLaughlin(s); I TThS Steinmann
- 27s. Advanced Writing (1st qtr. of 27-28. See 27f-28w) I MWF Bean; II MWF Buckley; III MWF Christie; IV MWF del Plaine; VI MWF Engelhart; VII MWF Ar.
- 28f. Advanced Writing (2nd qtr. of 27-28. See 27f-28w) I MWF R. Smith; II MWF Ar.; III MWF Scallon; IV MWF Macdonald; VI MWF Charles Johnson; VII MWF Buckley; I TThS Steinmann
- 29f. Advanced Writing. So far as is practical each student will determine by agreement with the instructor the types of writing he will do (3 cred.; prereq. 27) II TThS Hessler; III MWF del Plaine
- 29w. Advanced Writing (See 29f) II TThS Steinmann; III MWF del Plaine
- 29s. Advanced Writing (See 29f) II TThS Steinmann; III MWF Atkins; III MWF del Plaine

Senior College Courses

Course 65 is open to Junior College students who have an average grade of at least C in the prerequisite courses.

Courses 67-68, 69-70-71, 81-82-83 are open to Junior College students who have an average of at least B in two quarters of Courses 27, 28, 29, 65.

Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 65s. The Writing of Term Papers and Theses (3 cred.; jr., sr.; prereq. A-B-C, or 4-5-6 or Com. 1-2-3 and 6 additional cred. in English or Composition, or 10 cred. in Eng. 21-22-23) VI TTh and Ar. Buckley
- 67f-68w. Problems of Style. A study of style as technique, as idiosyncrasy, and in the absolute sense. An intensive study of short selections from good prose writers. Weekly writing (6 cred.; jr., sr.; prereq. average of B in two quarters of 27, 28, 29, 65) IV MWF Phelan, VI MWF Atkins
- 69f-70w-71s. Short-Story Writing. Includes studies in the technique and literature of the short story from Poe to the present (6 cred.; jr., sr.; prereq. average of B in two quarters of 27, 28, 29, 65) VIII-IX M Phelan
- 81-82-83. *Essays and Articles* (6 cred.; jr., sr.; prereq. average of B in two quarters of 27, 28, 29, 65) (Not offered)
- 101f-102w-103s. Seminar in Writing. A study of the principles of the composition of fiction. Class meetings are devoted to the analysis of examples drawn from standard sources. Writing by students is criticized in individual conferences. Students interested in writing poetry should consult Mr. Unger (9 cred.; sr., grad.; prereq. permission of instructor and for undergraduates 6 cred. above 50 in composition) VIII-IX W Phelan; VIII-IX F Unger
104. *The Writing of Poetry* (3 cred.; sr., grad.; prereq. Eng. 120-121 or 6 cred. above 50 in Composition, and permission of instructor) (Not offered)

For Graduate Students Only

- 200f-201w. Graduate Seminar in Writing (6 cred.; open to graduates and to special students not candidates for degrees on consent of instructor; credits may be counted as part of the distribution requirement in Plan B for the M.A. or as the minor in Plan A) IX-X M Warren

FAMILY LIFE

See General Studies, page 61.

FINE ARTS

See Art, page 30.

FRENCH

See Romance Languages, page 117.

GENERAL STUDIES

The Department of General Studies includes interdepartmental or divisional courses devised especially for the purposes of general education. They are designed to supplement the courses of other departments in helping the student to achieve a well-rounded education, and they are adapted to the needs of students expecting to specialize elsewhere as well as to those in the College of Science, Literature, and the Arts.

The courses have been arranged in six groups, each dealing with a different phase of the student's general educational development. In registering for these courses, write the group heading in the column labeled "department," as indicated in the listings below.

COMMUNICATION

- Com.1f-2w-3s. Communication. A course to help students use the English language more accurately and persuasively and to understand the agencies of mass communication, especially the press and radio. The course includes constant practice in writing and speaking, as well as in reading and listening; it provides for regular conferences with the instructor and exercises with a voice reflector; special conferences, if needed, with a speech consultant. The course is accepted as equivalent to Composition 4-5-6 in satisfying any requirements of the University. (12 cred.; prereq. placement test, see page 59. Corresponds to G.E.D. Test No. 1. See page 23.) I MWThF; I MTThS; II MTWF; II TThFS; III MTWF; III TThFS; IV MWThF; IV TThFS; V MTWF; VI MTWF; VII MTWF; VIII MTWF; IX MTWF
- Com.1w-2s. Communication (two qtrs. of 1-2-3. See 1f-2w-3s) I MTWF; VII MWThF
- Com.1s-1 Communication (First qtr. of 1-2-3. See 1f-2w-3s) V MWThF; VIII MWThF
- Com.2f-3w. Communication (Second and third qtrs. of 1-2-3. See 1f-2w-3s) V MTWF
- Com.3f. Communication (Third qtr. of 1-2-3. See 1f-2w-3s) V MWThF

FAMILY LIFE

With recognition that preparation for marriage and family living is an important part of general education, five courses are provided below. While it is assumed that the student will elect only those courses most appropriate to his personal needs, a maximum of 15 hour credits in the field may be applied toward the B.A. degree.

- F.L.1f,w,s. Preparation for Marriage. A discussion of such topics as the function of the family today, problems of dating and courtship, the engagement, relations of husband and wife, family crises and bases of marital stability. (Formerly Marriage A) (3 cred.; no prereq.) II MWF; V MWF; VII MWF; II TThS Dyer and others
- F.L.14f,w,s. Nutrition and Food Management. Scientific principles of nutrition; food purchasing; food preparation and service. The class is limited to 24 students, and will afford practical laboratory experience (5 cred.; no prereq.) IX MTWThF and X TTh Ar.
- F.L.15f,w,s. The Home and Its Furnishing. Present-day housing problems; choice of location; house plans as they affect family living; exterior and interior design; choice of appropriate furnishings and accessories; building furnishing costs (3 cred.; no prereq.) IV MWF Goldstein
- F.L.20f,w,s. Consumer Education. Aid to wise buying; effective consumer demand upon the market; consumer credit and banking procedures; insurance and annuities from the buyer's viewpoint; distribution and stability of income; governmental efforts to protect consumers (3 cred.; no prereq.) II TThS Price
- F.L.25f,w,s.* Child Development and Adjustment. The child as a growing person in the home and in society: development of habits, skills, attitudes and adjustment; the development of self-direction; the provision of good environment for child growth (For the general student; not for those interested in professional work with children. Majors in the Program of Kindergarten-Nursing as well as majors in Psychology may not register for this course. (3 cred.; no prereq.) III MWF Hansen

HUMANITIES

Junior College Courses

- Hum.1f-1 Humanities in the Modern World I. The old regime, the revolution and Napoleon. Period: from about 1770 to about 1830. Authors: Voltaire, Rousseau, Burke, Paine, Goethe, and the poets. One historical novel, Tolstoy's *War and Peace* (5 cred.; no prereq.) I MTWThF Bryan; II

* Students may not receive credit for this course if they have had Child Welfare 40 or Child Welfare 80.

† A fee of \$1 is charged for the first quarter of this course.

†† A fee of \$3 is charged for this course.

MTWThF Cronin; III MTWThF McClosky; IV MTWThF Ames; IV MTWThF Livingston; V MTWThF Sylvester; V MTWThF Ar.; VI MTWThF Ramsland; VII MTWThF Castell; VIII MTWThF Parrish

- Hum.1w.† Humanities in the Modern World I (See Hum. 1f) III MTWThF Bowditch; IV MTWThF Swanson
- Hum.1s.‡ Humanities in the Modern World I (See Hum. 1f) IV MTWThF Livingston; V MTWThF Ar.
- Hum.2w. Humanities in the Modern World II. The industrial revolution and liberalism; socialism and imperialism. How these bulked large in the nineteenth century. Period: from about 1830 to about 1870. Authors: Carlyle, Mill, Marx, Ibsen, Zola, and the poets (5 cred.; prereq. 1) I MTWThF Bryan; II MTWThF Cronin; III MTWThF McClosky; IV MTWThF Ames; IV MTWThF Livingston; V MTWThF Sylvester; VI MTWThF Ramsland; VII MTWThF Castell; VIII MTWThF Parrish
- Hum.2s. Humanities in the Modern World II (See Hum. 2f) III MTWThF Bowditch; IV MTWThF Swanson
- Hum.3f. Humanities in the Modern World III. The impact of evolution; socialism and imperialism; religion and morals in a changing world; the wars and totalitarianisms. Period: from about 1870 to about 1914. Authors: Huxley, Arnold, Turgeneff, Dostoevski, Nietzsche, Shaw, Mann, and the poets (5 cred.; prereq. 2) III MTWThF Bowditch
- Hum.3s. Humanities in the Modern World III (See 3f) I MTWThF Bryan; II MTWThF Cronin; III MTWThF McClosky; IV MTWThF Ames; V MTWThF Sylvester; VI MTWThF Ramsland; VII MTWThF Castell; VIII MTWThF Parrish
- Hum.4f. Humanities in the Modern World IV. An introduction to the study of the humanities since World War I. The authors studied include Freud, Lenin, Shaw, Capek, Malraux, T. S. Eliot, and others. The background topics include civilization between two wars, the impact of psychoanalysis, creative evolution, communism versus fascism, etc. (5 cred.; prereq. 1 or 2 or 3) IV MTWThF Swanson
- Hum.4w. Humanities in the Modern World IV (See Hum. 4f) V MTWThF Ar.
- Hum.4s. Humanities in the Modern World IV (See Hum. 4f) V MTWThF Ar.
- Hum.11f.‡-12w-13s. The European Heritage: from Homer to Molière. Great books as ideal representations of civilized man by himself, taken in association with notable works of fine art. Stress will be laid on ideals and forces of continuing importance for use in present-day civilization
- Hum.11f.‡ The Greek Heritage. The heroic age of legend—"Men like gods"; the golden age of Athens—tragedy, the concepts of goodness and beauty, the struggle for the state; the age of reason—the concepts of reason, justice, order. Selected readings in the historians and Aristotle; longer readings in Homer, Plato, the dramatists. Greek architecture and sculpture (5 cred.; no prereq.) III MTWThF Holmer
- Hum.12w. The Roman and the Medieval Heritage. Roman jurisprudence and organization; epicureanism and stoicism. Selections from Lucretius, Epictetus, Marcus Aurelius. Medieval faith, theocracy, chivalry, monasticism. Selections from St. Augustine, St. Thomas Aquinas, the Rule of St. Benedict. Longer readings from Dante, Chaucer. Early religious paintings, ecclesiastical and feudal architecture (5 cred.; no prereq.) III MTWThF Holmer
- Hum.13s. The Renaissance Heritage. Humanism; magnificence and individualism; secularism, skepticism, political realism; the protestant strain; modern science and scientific method. Selected readings in Machiavelli, Castiglione, Valla, Petrarch, More, Luther, Calvin; longer readings in Montaigne, Cervantes, Shakespeare, Milton, Bunyan, Molière. Renaissance architecture, sculpture and painting; Dürer, Raphael, Michelangelo, Leonardo da Vinci, Velasquez, Rubens, Rembrandt (5 cred.; no prereq.) III MTWThF Holmer
- Hum.21f.‡ American Life I. The growth and the interrelation of nationalism, regionalism, and internationalism in American social thought, literature, and the fine arts, against a background of history (Formerly Humanities in the United States I) (3 cred.; no prereq.) II MWF Bowron; III MWF Turpie; VII MWF Tyler
- Hum.22w. American Life II. The growth and interrelation of individualism and democracy, with particular attention to the status of minorities (Formerly Humanities in the United States II) (3 cred.; no prereq.) II MWF Bowron; III MWF Turpie; VII MWF Tyler
- Hum.23s. American Life III. The place in American civilization of work, the pursuit of happiness, the good life: their implications and interrelations (Formerly Humanities in the United States III) (3 cred.; no prereq.) II MWF Bowron; III MWF Turpie; VII MWF Tyler

Senior College Courses

Senior College courses in this department are not open to Junior College students except by special permission of the Students' Work Committee.

‡ A fee of \$1 is charged for the first quarter of this course.

- Hum.51f†-52w-53s. Humanities in the Modern World. This course is similar to Humanities 1-2-3 except that it is confined to juniors and seniors. A student may not receive credit for any quarter of this course if he has completed the corresponding quarter of Humanities 1-2-3 (15 cred.; jr., sr.; no prereq.) II MTWThF Bentley; II MTWThF Shaw; VI MTWThF Wolf
- Hum.61f†-62w-63s. The European Heritage: from Homer to Molière. This course is similar to Humanities 11-12-13 except that it is confined to juniors and seniors. A student may not receive credit for any quarter of this course if he has completed the corresponding quarter of Humanities 11-12-13 (15 cred.; jr., sr.; no prereq.) I MTWThF Clark; VI MTWThF Unger
- Hum.71f†-72w-73s. Humanities in the United States. This course is similar to Humanities 21-22-23 except that it is confined to juniors and seniors. A student may not receive credit for any quarter of this course if he has completed the corresponding quarter of Humanities 21-22-23 (9 cred.; jr., sr.; no prereq.) VII MWF Hornberger
- Hum.131f-132w-133s. Humanities Proseminar. Topic for course: The Place of the Humanities in an Age of Science (Formerly Humanities 97-98-99) (2 cred. per qtr.; sr., grad.) Ar. Ar. Castell

For information concerning a major in the Humanities, see page 76.

NATURAL SCIENCE

Several general education courses in natural science are listed below, each serving a distinctive purpose. Natural Science 1-2-3 is intended for students desiring an introduction to the total field of science, 4-5-6 is for those desiring an acquaintance with the physical universe, while 7-8-9 is for those wishing to explore the world of life.

Any of these courses may be used to fulfill the group "D" requirement in the natural sciences for admission to the Senior College of Science, Literature, and the Arts, the School of Business Administration, and the College of Education. Under Plan I, the course must be taken in its entirety. Students taking 1-2-3 may not receive credit for 4-5-6 or 7-8-9, but they may take both 4-5-6 and 7-8-9 for credit.

Junior College Courses

- Nat.Sci.1f-2w-3s.* Orientation in the Natural Sciences. An integrated survey course in which the student is introduced to the subject matter and methods of the physical and biological sciences. 1f: astronomy and certain phases of physics; 2w: chemistry; 3s: geology. The biological world, heredity, evolution, the body functions, public health, and the relation of biology to the culture and to behavior (15 cred.; fr., soph.; no prereq. Corresponds to G.E.D. Test No. 3. See page 23.) II MTWThF (One hr. lab. a week to be ar. in place of one lect.) Graubard
- Nat.Sci.4f†††-5w†††-6s.††† The Physical World. Essential elements of astronomy, physics, chemistry, and geology, selected to illustrate the methods of science and to acquaint the student with the universe around him (10 cred.; fr., soph.; no prereq.) Lect. IV MWF; lab. VI-VII M; VIII-IX M; III-IV T; VI-VII W; III-IV Th; VI-VII Th; VI-VII F; I-II S Buchta(f,w), Thiel(s)
- Nat.Sci.7f††-8w††-9s†† General Biology. The main principles of plant and animal life with particular reference to man and his place in the biological world (10 cred.; fr., soph.; no prereq.) Lect. VI MW Banks, Osterud; lab. sections as follows: I-II TTh; IX-X W and I-II S; IX-X MF

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- Phil.81f-82w-83s.† Science and Civilization. The course attempts to provide an adequate understanding of the evolution of the sciences and of the scientific point of view within the frame of the history of civilization; the meaning of the fundamental problems, methods, concepts, and assumptions of modern science; and the human and social implications of science in the contemporary world (Formerly Philosophy 80-81-82) (9 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.) III MWF Ar.

* If prerequisite for 2w. 3s has no prerequisite.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 is charged for the first quarter of this course.

†† A fee of \$1.50 per quarter is charged for this course.

††† A fee of \$1.50 per quarter is charged for this course.

† Students may enter any quarter.

Nat.Sci.171f-172w-173s. The Development of the Sciences. The aim of this course is to provide a first-hand acquaintance and a broad perspective of man's quest for verifiable knowledge known as science. Beginning with medicine, it will show the interaction of the sciences with the social conditions and general culture of each period (9 cred.; jr., sr., grad.; prereq. one year of biological and of physical science or consent of instructor) IV MWF Graubard

PERSONAL ORIENTATION

The successful person cannot be content with a knowledge of such fields as natural and social science. He must also know himself—his abilities, interests, habits, and their relation to educational and vocational requirements. The following courses seek to provide such understanding and to promote personal competence.

Per.Or.1f,w,s. How To Study. Practical assistance to the student in developing efficient study habits, organizing materials, training the memory, preparing for examinations and improving the speed and comprehension of reading (2 cred.; no prereq.) I MWF Herbert; II MWF Herbert; VIII MWF Power; IX MWF Power

Per.Or.11f,w,s. Vocational Adjustment. Assistance to students in understanding themselves as the best basis for vocational-educational planning. Consideration of occupational trends, descriptions, and adjustment problems. Active student participation through discussion, individual projects and committees (2 cred.; fr., soph.; no prereq.; not designed for students who have already received the services of the Student Counseling Bureau or a Veterans Administration Advisement Center) II TTh and 1 hr. ar. Ar.

SOCIAL SCIENCE

It is important that every student understand the crisis of our age. Course 1-2-3 provides a broad social orientation for Junior College students while Course 71 helps the advanced student to integrate further his own social philosophy.

Junior College Courses

- Soc.Sci.1f-2w-3s. Introduction to Social Science. A study of the great social issues of our time and analysis of the proposed solutions. Information and insights from every source—sociological, economic, political, geographic, historical—are utilized to assist the student in making judgments necessary for effective citizenship. The course may be used to satisfy the social science requirement for admission to the Senior College of Science, Literature, and the Arts and the College of Education, though under Plan I it must be taken in its entirety (12 cred.; no prereq.) A one-hour discussion group will be arranged for each of the following sections: I MWF; II MWF; III MWF; IV MWF; V MWF; VI MWF; III TThS Naftalin and others
- Soc.Sci.1w-2s. Introduction to Social Science (First 2 qtrs. of 1-2-3. See 1f-2w-3s) V MWF and one-hour discussion group ar. Ar.
- Soc.Sci.1s. Introduction to Social Science (First qtr. of 1-2-3. See 1f-2w-3s) II TThS and one-hour discussion group ar. Ar.
- Soc.Sci.2f-3w. Introduction to Social Science (Second and third qtrs. of 1-2-3. See 1f-2w-3s) II TThS and one-hour discussion group ar. Ar.
- Soc.Sci.3f. Introduction to Social Science (3rd qtr. of 1-2-3. See 1f-2w-3s) V MWF and one-hour discussion group ar. Ar.
- Soc.Sci.11f-12w-13s. International Relations. A survey of the world's critical areas and an examination of international forces in war and peace. This course offers a basis for informed evaluation of future as well as present international situations (9 cred.; fr., soph.; no prereq. for 11; prereq. for 12, Soc.Sci. 11 or Pol.Sci. 25; prereq. for 13, Soc.Sci. 12) III MWF Levi

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- Phil.71s. Design for America. A discussion of the aims of American life with the future as a frame of reference. Potentialities in economics, politics, art, science, and education in their interrelations. Student and faculty participation is stressed (Formerly Philosophy 21) (5 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.) IV MTWThF Wiggins
- Soc.Sci.81f-82w-83s. Public Affairs Forum. Introduction to contemporary American and world problems. Lectures, study and forum discussion concerning selected issues (9 cred.; jr., sr.; no prereq. Students may enter any quarter) IV MWF and V F Ar.

GEOGRAPHY

Major adviser in the College of Science, Literature, and the Arts—Professor Broek.

Major sequence in the College of Science, Literature, and the Arts—Twenty-seven credits from Geography 53, 71, 101, 102, 103, 104, 110, 111, 120, 125, 133, 241, 251, 252, 253; Economics 172, 176; Geology 110; History 80-81-82; Botany 131. At least 20 credits must be in Geography.

(Prerequisites: Courses 11 and 41; Geology 1-2 and A-B or 8; Economics 6-7.)

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Broek.

Requirements for a teacher's certificate—Major recommendation: a minimum of 28 credits from the following courses in Geography: 11, 41, 43, 47, 53, 71, 101, 102, 103, 104, 110, 111, 120, 125, 133, 241, 251, 252, 253.

An additional 5 or 6 credits from the following courses in Geology: 1-2 or 8.

Minor recommendation: 18 credits from the following courses in Geography: 11 or 41, 53, 71, 101, 102, 103, 104, 110, 120.

For a specialized curriculum in social studies, see the *Bulletin of the College of Education*.

Junior College Courses

- 11f. Human Geography. A study of environmental factors as they limit human activities. Current problems in the use of our natural resources are used as illustrative material. Approximately five weeks are devoted to maps and a study of weather and climate, both of value in everyday life (5 cred.; no prereq.§) I MTWThF Kress; III MTWThF Ar.
- 11w,s. Human Geography (See 11f) III MTWThF Ar.; VIII MTWThF Ar.
- 41f,w,s. Geography of Commercial Production. Types of production and their geographic basis. Emphasis on the production of commodities of commercial significance (5 cred.; no prereq.§) V MTWThF Kress; VI MTWThF Weaver
- 43f,w,s. Political Geography. A study of geographic conditions as they affect international relations (5 cred.; soph., jr., sr.; no prereq.) II MTWThF Broek
47. *Geography of Minnesota* (3 cred.; soph., jr., sr.; no prereq.) (*Not offered*)

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 71f. Geography of North America (3 cred.; jr., sr.; prereq. 11) VII MWF Weaver
- 101w. Geography of Europe (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) I MWF Broek
- 102w. Trade Routes and Trade Centers (3 cred.; jr., sr., grad.; prereq. 41) VII MWF Weaver
- 103w. Geography of Africa (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) IV MWF Ar.
104. *Geography of Australasia* (2 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) (*Not offered*)
- 110f. Geography of South America (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) IV MWF Ar.
111. *Cartography and Graphic Representation* (3 cred.; jr., sr., grad.; prereq. 10 cred.) (*Not offered*)
- 120s. Geography of Asia (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) I MWF Broek
- 125s. Geography of the Polar Regions (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) VII MWF Weaver
133. *Climatology* (3 cred.; jr., sr., grad.; prereq. 10 cred. incl. 11) (*Not offered*)

Primarily for Graduate Students

241. *Field Course* (*Not offered*)
- 251f. Seminar. VII-VIII T Broek
- 252w. Seminar. VIII-IX T Ar.
- 253s. Seminar. IX-X T Weaver
- 301f,w,s. Research Problems. Ar. Ar. Broek, Weaver

§ There is no prerequisite for either Course 11 or Course 41; but students who intend to take both are advised to take Course 11 first.

GEOLOGY AND MINERALOGY

Major advisers in the College of Science, Literature, and the Arts—Professor Thiel and Assistant Professors Bell and Swain.

Major sequences in the College of Science, Literature, and the Arts—A major sequence in geology should include: (1) Mineralogy 23-24 which should be taken as early as possible; (2) Mathematics 50 (for a paleontology major Math. 7 plus Zoology); (3) Physics 7-8-9 (Physics 8 and 9 are Senior College courses recommended as part of a minor); (4) a year of College Chemistry; (5) a course in Surveying (preferably Civil Engineering 17. See the *Bulletin of the Institute of Technology*); (6) courses in Drawing are desirable.

The following Senior College courses are required of all majors: 105, 106, 100¶ or 150¶, 125, 144, plus one of the following sequences:

Sequence A. General geology, federal and state surveys, etc. Courses 101, 107, 118, 119, 145, 151-152.

Sequence B. Mineralogy and Petrography. Courses 61, 110-111, 121, 131-132.

Sequence C. Economic Geology. Courses 107, 110-111-112, 131, 151.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Thiel.

For a specialized curriculum in natural science see the *Bulletin of the College of Education*.

For a specialized curriculum in geophysics see the *Bulletin of the Institute of Technology*.

Junior College Courses

There are two beginning courses in geology: Course 1-2 (with or without the laboratory course A-B); Course 8, which is a one-quarter course, without laboratory, for those who do not take geology to meet a laboratory science requirement.

1f-2w.† General Geology (Physical and Historical). A study of geologic processes and of the materials on which they operate, together with a resumé of the history of the earth and its inhabitants as recorded in the rocks (6 cred.; no prereq.) III TThS Wright; VI MWF Swain

Af‡-Bw.‡§ General Geology Laboratory (Physical and Historical). The physical properties of common minerals and rocks. Determinative work and sight identification of rocks and fossils. Interpretation of land forms from maps and aerial photographs (4 cred.; with or after 1-2) I-II TTh; VI-VII MW; VI-VII TTh

1w-2s.† General Geology (Physical and Historical) (See 1f-2w) IV TThS Wright; VII MWF Swain
Aw‡-Bs.‡§ General Geology Laboratory (Physical and Historical) (See Af-Bw) I-II MW; III-IV MW; VIII-IX TTh

1s. General Geology (Physical and Historical) (First qtr. of 1-2. See 1f-2w) III TThS Wright; VI MWF Swain

As.‡§ General Geology Laboratory (Physical and Historical) (First qtr. of A-B. See Af-Bw) I-II TTh; III-IV TTh; VI-VII TTh

2f.† General Geology (Historical) (Second qtr. of 1-2. See 1f-2w) IV MWF Swain

Bf.‡§ General Geology Laboratory (Historical) (Second qtr. of A-B. See Af-Bw) III-IV TTh

† To receive credit for any part of this course a student must complete the parts preceding the dagger, except that students in Forestry may take 1 and A for 5 credits without completing 2 and B.

‡ A fee of \$1 is charged for this course.

§ Course A-B must be completed if geology is offered as the required laboratory science.

¶ Girls may take trip only when there are enough for a separate section. They should consult a major adviser.

- 8f,s.¶ Earth Features and Their Meaning—An Introductory Course. A general education elective. An explanation of the natural landscape as produced by such agents as the atmosphere, water, glaciers, volcanoes and mountain building forces acting on the materials of the earth. (5 cred.; no prereq.) II MTWThF Thiel
- 8w.¶ Earth Features and Their Meaning (See 8f) III MTWThF Thiel
- 23ff-24w.‡ Elements of Mineralogy. The crystal systems; morphological, physical, and chemical characters of minerals; classification and description of common minerals. Determinative work in laboratory, blowpipe analysis, sight identification (10 cred.; soph., jr., sr.; prereq. a term of college chemistry) Lect. I MWF; rec. VIII T; lab. VI-VII TTh Gruner

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 61w. Blowpipe Analysis. The determination of minerals by systematic blowpipe analysis (3 cred.; jr., sr.; prereq. 24) Lect. II TThS; lab. VII-VIII F and IX Th Gruner
- 100.§ Field Work in Northern Minnesota—July 15 to 30, approximately. Students interested in this field trip should consult the department (3 cred.; jr., sr.; prereq. 105) Ar. Ar. Gruner
- 101f. Sedimentation. The origin of sedimentary rocks and their primary structures; interpretation of sediments in relation to paleogeography (3 cred.; jr., sr., grad.; prereq. 24) III TThS Thiel
- 102w. Methods of Study of Sediments. Techniques used in the study of sediments and sedimentary rocks. Textural and mineralogical analyses of clastic and nonclastic materials (3 cred.; jr., sr., grad.; prereq. 106) Lect. VI T; lab. VII-VIII TTh Thiel
- 103w-104s. Micropaleontology. The study and classification of Foraminifera, Ostracoda, and other small fossil organisms and their use for purposes of correlation in oil fields (6 cred.; jr., sr., grad.; prereq. 107) Ar. Ar. Swain
- 105s. Rock Study. The occurrence and genesis of rocks; their mineral and chemical composition and classification; their structure, texture, and alteration (2 cred.; jr., sr., grad.; prereq. 24) Lect. I TS; lab. I-II Th Grout
- 106f. Petrography. The identification and study of minerals and rocks by optical methods; the microscopic study of igneous, sedimentary, and metamorphic rocks (2 cred.; jr., sr., grad.; prereq. 105) VI-VII TTh Grout
- 107f. Invertebrate Paleontology. Morphology and classification of some important invertebrate genera (3 cred.; jr., sr., grad.; prereq. 2 and 24). VI-VIII TTh Bell
- 108w-109s. Stratigraphic Paleontology. Study of representative invertebrate faunas, together with their geographic and stratigraphic distribution (6 cred.; jr., sr., grad.; prereq. 107) Ar. Ar. Bell
- 110f-111w. Economic Geology. The nature, genesis, and distribution of mineral deposits; relation of mineral deposits to structure and superficial alteration (6 cred.; jr., sr., grad.; prereq. 105) I TTh and VI F Schwartz
- 112s. Geology of Petroleum. The nature, origin, and distribution of petroleum and the geology of the various oil fields of the world (3 cred.; sr., grad.; prereq. 151 and 125) I TThS Swain
- 114s. Geology of Minnesota and Adjoining Areas. The structure, stratigraphy, and lithology of the rocks and their associated mineral resources (3 cred.; jr., sr., grad.; prereq. 105) IV MWF Thiel
- 118f. Principles of Geomorphology. Origin and evolution of constructional and destructional land features produced by current geological processes such as weathering, mass movements, wind, running water, glaciers, waves and currents, vulcanism, and diastrophism (3 cred.; jr., sr., grad.; prereq. A and 2) I MWF Wright
- 119w. Geomorphology of the United States. Regional study by physiographic units emphasizing surface features and tracing the influence of process, structure, and geological history. Discussion of the characteristic forms and principal problems in each area (3 cred.; jr., sr., grad.; prereq. 118) IV MWF Wright
- 120s. Glacial Geology. Origin of glaciers, existing glaciers, glacial mechanics, topical treatment of erosional and depositional products of continental and mountain glaciations, chronology of the Pleistocene, ancient glaciations (3 cred.; jr., sr., grad.; prereq. A and 2) Ar. Ar. Wright
- 121f. Crystallography. The symmetry relations in the thirty-two crystal classes. Crystal drawings and measurements. Projections and mathematical calculations (3 cred.; jr., sr., grad.; prereq. Math. 7 and Inorg.Chem. 6-7 or 9-10) Ar. Ar. Gruner

‡ A fee of \$1 is charged for this course

§ A more comprehensive report will be required for Graduate School credit.

¶ Not open to students who have had Course 1. Does not satisfy the Junior College requirement for science. Cannot be followed by Course 1 for credit. May be followed by Course 2 or Course A with instructor's permission.

- 124w. Metamorphic Geology. Conditions, processes, and results of weathering and metamorphism (3 cred.; jr., sr., grad.; prereq. 2 and 105) II MWF Schwartz
- 125f. Structural Geology. Study of the principles and applications of geological structures (3 cred.; jr., sr., prereq. 105) II TThF Wright
- 131w-132s. Advanced Petrology. Advanced optical methods. Criteria for rapid identification of the common rock clans. Regional and genetic studies. Petrographic reports (10 cred.; jr., sr., grad.; prereq. 106) Lect. I MWF; rec. VI M; lab. VI-VII WF Grout
- 137s. Principles of Chemical Geology. A study of geochemical literature. Methods in geochemical research and application of chemical and physical chemical principles to geological problems (3 cred.; jr., sr., grad.; prereq. 105) Ar. Ar. Gruner
- 140w-141s. Applied Petrography. Determination of ore and gangue minerals, microscopic studies of paragenesis of ores and other mineral associations. Practical problems in mining and geology (6 cred.; jr., sr., grad.; prereq. 131) Lect. II F(w), IV W(s); lab. VIII-IX MW Grout
- 144w. Interpretation of Geological Maps. Laboratory problems study of geological maps, structure contours, and mine maps. Mathematical and geometrical treatment of geological elements pertaining to strata, veins, faults, and other bodies in three dimensions (3 cred.; jr., sr., grad.; prereq. 125) VI-VIII TTh Wright
- 145s. Use and Interpretation of Aerial Photographs. Elements of aerial photographs, simple photogrammetric procedures, planimetric maps from photos, normal and stereoscopic study, geological interpretation and field use (3 cred.; jr., sr., grad.; prereq. A and 2) VI-VIII TTh Wright
- 146f-147w. Soil Mineralogy (8 cred.; jr., sr., grad.; prereq. one year of college chemistry) Ar. Ar. Gruner
- 150.* Field Geology (Black Hills) June 15 to July 15. Detailed systematic work conforming to official surveys (Jr., sr., grad.; prereq. 125) Ar. Ar. Gruner
- 151w-152s. Stratigraphy. Stratigraphic principles and methods illustrated by analyses of selected areas; term papers (6 cred.; jr., sr., grad.; prereq. 107) III MWF Bell
- 153f. Subsurface Stratigraphy. The application of sample logs, electrical logs, and other techniques to the detailed stratigraphy of the subsurface in selected areas (3 cred.; jr., sr., grad.; prereq. 152) Lect. II T, lab. VI-VII TTh Swain
- 161w. Advanced Mineralogy. Use of X rays for identification of minerals. The crystalline state. Isomorphism and polymorphism. Phase rule applied to mineralogy. Structures of silicates. Synthesis of minerals. (3 cred.; jr., sr., grad.; prereq. 121) Ar. Ar. Gruner
- 166w-167s. Mineralography. Methods of studying opaque minerals and application of the methods to problems in ore genesis and history (6 cred.; sr., grad.; prereq. 111, 131) VI-VII MTTh(w); Ar. Ar.(s) Schwartz
- 170f,w,s. Geological Problems (3 cred.; jr., sr., grad.; prereq. permission of major adviser) Ar. Ar. Ar.

For Graduate Students Only

- 211-212-213. Advanced Paleontology. Bell, Swain
214. Seminar in Ore Deposits. Grout, Schwartz
215. Advanced Principles of Ore Deposits. Schwartz
216. Geology of the Ore Deposits of the Western Hemisphere. Schwartz
241. Field Course in Geology. Ar.
- 243-244. Research Course in Geology. Bell, Grout, Gruner, Schwartz, Swain, Thiel, Wright
- 245-246. Research Course in Sedimentation. Thiel
- 251-252. Original Mineralogical Problems. Gruner
- 253-254. Research Course in Ore Deposits. Grout, Gruner, Schwartz
- 263-264. Research Course in Petrology. Grout

GERMAN

Major advisers in the College of Science, Literature, and the Arts—Professors Burkhard and Downs.

Major sequence in the College of Science, Literature, and the Arts—Eighteen credits from Group A or Group B, and 15 additional credits in courses, other than 73-74-75, numbered 50 or above.

* A maximum of 6 credits will be granted after field report is completed. The course will not be given for fewer than six students.

A. Courses 50-51-52, 53-54-55, 56-57, 58, 70, 80.

B. Courses 60, 61, 62, 63, 64, 65, 70, 71 or 72, 77.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Burkhard.

Requirements for a teacher's certificate—Major recommendation: Courses 50-51-52, 53-54-55, 56-57, 58, 71 or 72, and 15 additional credits in courses, other than 73-74-75, numbered 50 or above.

Minor recommendation: Courses 50-51-52, 58, and 8 additional credits in courses, other than 73-74-75, numbered 50 or above.

Sequence of courses for academic students—Without entrance German: Courses 1, 2, 3, 4, other courses numbered 50 or above. With one year of entrance German: Courses 2, 3, 4, other courses numbered 50 or above. With two years of entrance German: Courses 3, 4, other courses numbered 50 or above. With three years of entrance German: Course 4 and other courses numbered 50 or above. With four years of German: courses numbered 50 or above.

Course 33 is recommended for premedical students.

Junior College Courses

1f-2w-3s.¶ Beginning Course—Standard Section. Five class meetings a week. Using the oral approach, the course aims to give the student a knowledge of the elements of grammar and the facility to read and write easy German (15 cred.; no prereq. Students submitting one year of high school German for entrance take Course 2; those offering two years take Course 3) I MTWThF; II MTWThF; III MTWThF; IV MTWThF; V MTWThF; VI MTWThF; VII MTWThF

1w-2s. Beginning Course—Standard Section (First 2 qtrs. of 1-2-3. See 1f-2w-3s) I MTWThF; II MTWThF

1s. Beginning Course—Standard Section (First qtr. of 1-2-3. See 1f-2w-3s) I MTWThF; II MTWThF

1af-2aw-3as.¶ Beginning Course—Conversational Section. Ten class meetings a week: five hours of demonstration (introduction to texts dealing with real-life situations; necessary grammar) plus five hours of intensive conversational drill in sections small enough to assure each student individual attention. Less home study required than in standard or reading courses (15 cred.; no prereq.) Demonstration III MTWThF plus laboratory drill IV MTWThF

1bf-2bw-3bs.¶ Beginning Course—Reading Section. Five class meetings a week. Aim of the course: to develop reading proficiency in the shortest time by concentrating from the outset on vocabulary building and reading techniques and reducing grammar to a minimum (15 cred.; no prereq.) II MTWThF

2f-3w. Beginning Course—Standard Section (Second and third qtrs. of 1-2-3. See 1f-2w-3s) III MTWThF; VII MTWThF

3f. Beginning Course—Standard Section (Third qtr. of 1-2-3. See 1f-2w-3s) I MTWThF; II MTWThF; V MTWThF; VI MTWThF

4f.§ Intermediate German (5 cred.; prereq. 3 or 3a, or 3b, or three years of high school German) III MTWThF; IX MTWThF

4w.§ Intermediate German (See 4f) I MTWThF; VI MTWThF

4s.§ Intermediate German (See 4f) III MTWThF; VII MTWThF

20w,s. Reading and Speaking German. Short stories and plays are read to develop reading fluency; classes are conducted in German (5 cred.; prereq. German 4, four years of high school German, or equiv.) III MTWThF

24f-25w-26s. Chemical German (9 cred.; chemists, miners; no prereq.) IV MWF

24af-25aw-26as. Chemical German (12 cred.; pharmacists and agricultural students; no prereq.) IV MTFW

27f-28w-29s. Chemical Prose (9 cred.; chemists, pharmacists, miners; prereq. two years of high school German or one year of college German) IV MWF

33f,w,s.§ Medical German (5 cred.; premed.; prereq. 3 or 3a, or 3b) II MTWThF; IV MTWThF

41f-42w-43s. Readings from German Chemical Periodicals (6 cred.; sr.; prereq. 26 or equiv.) IV TTh

§ For premedical students 33 is recommended instead of 4.

¶ The sequence of courses that must be followed is 1-2-3, or 1a-2a-3a, or 1b-2b-3b.

Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50f-51w-52s. Composition. A review of German grammar; writing of dialogs, with emphasis upon colloquial usage, and of original compositions (6 cred.; jr., sr.; prereq. 4) VI MF Downs
- 53f-54w-55s. Conversation. A work of fiction and a conversational manual provide the basis for oral practice to develop an elementary command of spoken German (6 cred.; jr., sr.; prereq. 4) VI TTh Uhle
- 56f-57w. Essay Writing. Short German essays are written at home on topics developed orally in class; corrections are discussed with the students (6 cred.; jr., sr.; prereq. 52) III TThS Pfeiffer
- 58s. German Pronunciation. Study of the "Hochsprache" as the established standard of correct pronunciation with practical exercises in phonetic transcription. Critical evaluation of individual pronunciation, utilizing modern recording instruments (2 cred.; jr., sr.; prereq. 4) III TTh Downs
- 59w,s. German Pronunciation and Diction (Open only to candidates for the German play) (1 or 2 cred.; jr., sr.; prereq. 3) Ar. Ar. Ar.
- 60w. Modern Writers. Writers and literary movements of the twentieth century are represented in stories and plays including works of Mann, Schnitzler, Werfel, and Rilke (3 cred.; prereq. 4 or four years of high school German) III MWF Ar.
61. *Lyrics and Ballads*. Representative poets including Goethe, Heine, George, and Rilke are read and discussed; poems set to music by Schubert, Schumann, Brahms, and others are presented in recordings (3 cred.; jr., sr.; prereq. 3 cred. above 59) (Not offered)
- 62s. Nineteenth-Century Prose (3 cred.; jr., sr.; prereq. 3 cred. above 59) II MWF Pfeiffer
- 63f. Classical Drama. Reading and discussion of classical dramas chosen from the works of Lessing, Goethe, Schiller (3 cred.; jr., sr.; prereq. 60 or 4 with a grade of B) IV MWF Burkhard
- 64w. Nineteenth-Century Drama. Reading and discussion of selected works of the outstanding dramatists of the nineteenth century, Kleist, Grillparzer, Hebbel (3 cred.; jr., sr.; prereq. 3 cred. above 59) IV MWF Burkhard
- 65s. Modern Drama. Reading and discussion of selected dramas representing the more recent movements in German literature, naturalism, impressionism, expressionism (3 cred.; jr., sr.; prereq. 3 cred. above 59) IV MWF Burkhard
- 70f-71w-72s. Survey of Literature. 70f: Early German Literature. Reading and discussion of Old High German and Middle High German classics in modern German translation; 71w: From the Renaissance through Goethe and Schiller; 72s: From Romanticism to the Twentieth Century (9 cred.; jr., sr.; prereq. 3 cred. above 59) III MWF Downs(f), Burkhard(w,s)
- 73f-74w-75s. German Classics in English Translation (This course requires no knowledge of the German language.) German literature from medieval to modern times is discussed in its relation to other literatures; representative works are read in translation. Topics include *Parzival*, *Tristan and Isolde*, *Nibelungenlied*, minnesinger and meistersinger; Humanism; Reformation and Counter-Reformation; Goethe, Schiller, and the new humanism; Romanticism; Heine; Wagner, Nietzsche; Hauptmann, Mann, Werfel (6 cred.; jr., sr.; no prereq.) VII MF Downs
- 77s. Faust I (3 cred.; jr., sr.; prereq. 63 and 3 additional cred. above 59) II MWF Burkhard
- 80w. History of the German Language (3 cred.; jr., sr.; prereq. 6 cred. above 60) VII MWF Downs
- 90-91-92.* *Reading in the Student's Major Field* (or in Military or Naval German) (1 cred. per qtr.; jr., sr.; prereq. 4 and consent of instructor) (Not offered)

For a complete list of graduate offerings see "The Graduate School Announcement."

Courses numbered 100 to 199 are open to seniors upon recommendation of advisers.

COURSES IN GERMAN LITERATURE

- 130-131-132. *The Age of Luther* (9 cred.; sr., grad.; prereq. 70 or equivalent and 11 cred. above 59) (Not offered)
- 143-144-145. *The Classical Period: Goethe* (9 cred.; sr., grad.; prereq. 71 and 11 cred. above 59 or equivalent) (Not offered)
- 150f-151w-152s. Studies in German Literature of the Nineteenth Century: Die Novelle (9 cred.; sr., grad.; prereq. 72 or equivalent and 11 cred. above 59) VIII-X T Burkhard
- 153-154-155. *Modern Literature*. A survey from 1880 to the present (9 cred.; sr., grad.; prereq. 72 or equivalent and 11 cred. above 59) (Not offered)

* A student may earn 6 credits in German 90-91-92.

- 160-161-162. *Lyric Poetry* (9 cred.; sr., grad.; prereq. 70-71-72 or equivalent and 11 cred. above 59) (*Not offered*)
- 163-164-165. *The Nineteenth Century Novel*. Special emphasis will be placed on Keller, Meyer, and Fontane (9 cred.; sr., grad.; prereq. 72 or equivalent and 11 cred. above 59) (*Not offered*)
- 173f-174w-175s. *German and English Literary Relations in the Seventeenth, Eighteenth, and Nineteenth Centuries* (9 cred.; sr., grad.; prereq. 70 and 11 cred. above 59) VIII-X F Pfeiffer

COURSES IN LINGUISTICS AND PHILOLOGY

- 110-111-112. *Middle High German*. Linguistic introduction and readings in Middle High German literature (9 cred.; sr., grad.; prereq. 70 and 11 cred. above 59) (*Not offered*)
- 113f-114w. *Gothic*. Introduction to Germanic Linguistics and to a comparative study of Indo-European languages (3 cred. per qtr.; sr. with completed major sequence, grad.; prereq. 80 and 11 cred. above 59) Ar. Ar. Downs
125. *History of the German Language* (3 cred.; sr., grad.; prereq. 80 and 11 cred. above 59) (*Not offered*)
126. *Historical German Grammar* (3 cred.; sr., grad.; prereq. 110-111-112 or 113-114-115) (*Not offered*)
- 176-177. *Problems and Research Trends in German Philology*. 176f: The Germanic language; 177w: The Germanic literary tradition. A comparative discussion of native and foreign records of the Old German period (6 cred.; sr., grad.; prereq. two Germanic dialects) (*Not offered*)
183. *Germanic Heroic Poetry* (3 cred.; sr., grad.; prereq. 8 cred. in literature) (*Not offered*)
- 194s. *Old Saxon* (3 cred.; sr., grad.; prereq. 113) Ar. Ar. Downs
- Scand.195. *Introduction to Old Norse Language and Literature*. Old Norse phonology and morphology. Survey of Old Icelandic history and literature (4 cred.; sr., grad.; prereq. 113) (*Not offered*)

Courses for Graduate Students

COURSES IN GERMAN LITERATURE

- 253-254-255. *Seminar: Literary Problems* (9 cred.; grad.; prereq. 9 credits in grad. courses in German Literature)
- German Baroque Literature: from the Renaissance to the Age of Reason* (*Not offered*)
 - Goethe and the Middle-Class Tradition* (*Not offered*)
 - Romanticism* (*Not offered*)
 - Nineteenth-Century Drama: Kleist, Grillparzer, Hebbel* (*Not offered*)
 - The Problem of Tragedy in Modern Drama* (*Not offered*)

COURSES IN LINGUISTICS AND PHILOLOGY

- 218-219-220. *Seminar: Germanic Languages and Literature* (9 cred.; grad.; prereq. at least 2 Germanic dialects)
- Problems in Middle High German Literature* (*Not offered*)
 - Texts in Germanic Dialects: Runic Inscriptions* (*Not offered*)
 - Old High German*. Linguistic interpretation of texts (*Not offered*)

GREEK

See Classics, page 46.

HISTORY

Major advisers in the College of Science, Literature, and the Arts—Professors Krey, Osgood, Steefel, Willson, Jones, and Wolf.

Major sequence in the College of Science, Literature, and the Arts—Students will take the equivalent of at least two nine-credit courses numbered from 50 to 100. These will normally come in the junior year. In the senior year, students, if they have maintained to the end of the junior year an honor point average of 1.5 in all work, will take at least one course numbered 150 or above; all other majors in history will take an additional number of courses with numbers 50 to 100 in the senior year, but will not take courses numbered 150 or above. Normally a history major will consist of Senior College courses aggregating at least 27 credits. Credits in Political Science 153, 192-193, will be accepted toward the major in history.

(Prerequisites: Courses 1-2-3 or 4-5-6 or 14-15-16, and 20-21-22)

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Krey.

Requirements for a teacher's certificate—Major recommendation: a minimum of 45 credits; at least 18 credits must be in Senior College courses.

Minor recommendation: a minimum of 18 credits of which at least 9 credits must be in Senior College courses.

No major recommendation to teach history will be given unless the candidate has taken the general course in American history, History 20-21-22, or equivalent.

(Prerequisites: Courses 1-2-3 or 4-5-6 or 14-15-16, and 20-21-22)

Students will take at least two of the courses numbered from 50 to 100. These will normally come in the junior year. In the senior year, students, if they have maintained to the end of the junior year an honor point average of 1.5 in all work, will take at least one course numbered 150 or above; all other majors in history will take an additional number of survey courses in the senior year, but will not take courses numbered 150 or above.

For a specialized curriculum in social studies see the *Bulletin of the College of Education*.

Students planning to do advanced work in history should get a reading knowledge of French and German in their early undergraduate years.

Junior College Courses

Most of these courses are announced for f-w-s or w-s; but students may enter any quarter.

- 1f-2w-3s. Civilization of the Modern World. 1: The rise of the European state system as the framework within which Western civilization developed, and the economic, cultural, political, intellectual, and religious implications of the emerging system; 2: The struggle for control over the Western states system, and the emergence of liberal democracy in the modern world; 3: The impact of industrialism upon Western and world civilization, the origins and backgrounds of the twentieth-century world. (9 cred.; no prereq.) Lect. II TTh Wolf; rec. sections as follows: I M; I T; I W; I Th; II M; II W; II F; II S; III T; III W; III Th; IV T; IV Th; VI M; VI W; VI Th; VII M; VII T; VII W; VII Th
- 1w-2s. Civilization of the Modern World (Two qtrs. of 1-2-3. See 1f-2w-3s) Lect. II MW Deutsch, Bowditch; rec. sections as follows: II T; II Th; II F; VI T; VI Th
- 3f. Civilization of the Modern World (Third qtr. of 1-2-3. See 1f-2w-3s) Lect. II MW Deutsch, Bowditch; rec. sections as follows: II T; II Th; II F; VI T; VI Th
- 4f-5w-6s. English History. 4f: Conquest and settlement, the feudal age, foreshadowings of limited monarchy and popular government; 5w: Tudors and Stuarts, parliament versus king, colonization; 6s: The coming of democracy, Britain and Europe, Empire and Commonwealth (9 cred.; no prereq.) Lect. II MW Burt; rec. sections as follows: I T; I Th; II T; II Th; III T; III Th; VII T; VII Th
- 11f-12w-13s. Medieval History. 11f: The Roman heritage, the "age of faith," the feudal age; 12w: The crusades, towns and trade, learning and literature, Gothic; 13s: Renaissance and Reformation, the rise of national states, exploration and discovery (9 cred.; for music and art students only; no prereq.) IV MWF Krey, Thompson
- 14f-15w-16s. Ancient Civilization (9 cred.; no prereq.) VII TWTh Jones
- 14Af-15Aw-16As. Ancient Civilization with Basic Readings (15 cred.; no prereq.) VII MF Heller, VII TWTh Jones
- 17s. Modern Economic and Social Problems. A historical survey of contemporary problems created by changes in the organization and methods of production and trade, in class relationships, political institutions and ideas; and of the efforts made by farmers, manufacturers, bankers, wage-earners, consumers, voluntary associations, and governments to find conservative, reformist, or revolutionary solutions (5 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.) Lect. II TThS; rec. sections III TTh; VIII TTh Heaton

20f-21w-22s. American History. A survey of the political, economic, and social history of the United States with emphasis on the forces that resulted in the emergence of modern America. 20f: Colonial and Early National Period; 21w: Sectionalism and National Development; 22s: Modern America (9 cred.; soph., jr., sr.; no prereq.) Lect. II TTh Twyman or VIII TTh Twyman; rec. sections as follows: II F; IV T; IV Th; IV F; VI W; VI F; VII F; VIII M; IX M

Senior College Courses

Except where otherwise stated, there are no prerequisites for the courses numbered 50 to 100. Most of these courses are announced for f-w-s or w-s, but students may enter any quarter.

Senior College courses with numbers less than 100 are open to third quarter sophomores who have an average grade of at least C in 9 credits of history. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

50-51-52. *History of Greece to 200 B.C.* (9 cred.; jr., sr.) (Not offered)

50a-51a-52a. *History of Rome* (9 cred.; jr., sr.) (Not offered)

50bf-51bw-52bs. History of the Ancient Near East (9 cred.; jr., sr.) I TThS Jones

53f-54w-55s. Medieval European History. 53: Decline of the Roman Empire; 54: The Feudal Age; 55: The Crusades, Gothic Architecture, Thomas Aquinas (9 cred.; jr., sr.) III MWF Krey

53a-54a-55a. *Renaissance and Reformation*. 53a: The Age of Dante and Petrarch; 54a: Italian Renaissance; 55a: The European Renaissance and Reformation (9 cred.; jr., sr.) (Not offered)

56-57-58. *Continental Europe*. 56: 1559-1661, the Era of the Thirty Years' War; 57: 1661-1774, the Age of Louis XIV, the "Age of Reason" and the "Enlightened Despots"; 58: 1774-1815, the French Revolution and the Napoleonic Empire (9 cred.; jr., sr.) (Not offered)

56af-57aw-58as. Russia: 56af: The Origins of the Slavs, the Eastward Movement and the Rise of the Principality of Moscow; 57aw: The Empire from Peter the Great through the Great Reforms of Alexander II; 58as: From Alexander II to the Present (9 cred.; jr., sr.) IV MWF Anderson

56bf-57bw-58bs. History of the Middle East. Persia, Afghanistan, the Arabic People, and Turkey. 56bf: From Early Times to 1520; 57bw: From 1520 to 1801; 58bs: From 1801 to the Present (9 cred.; jr., sr.; prereq. 1-2-3) III MWF Anderson

59f-60w-61s. Continental Europe. 59: Reconstruction after the Napoleonic Wars, Liberalism and Nationalism, the Revolutions of 1820, 1830, 1848; 60: Napoleon III, the first "Modern" Dictator; Making the Kingdom of Italy and the Second German Reich; 61: 1871-1914, Forty Years of Peace and Preparation for War (9 cred.; jr., sr.) IV MWF Steefel

62-63-64. *European Overseas Expansion*. 62: Voyages of Discovery and Overseas Expansion, 1400-1600; 63: Colonial Rivalries in the West Indies, East Indies, and India, 1600-1815; 64: Imperialism since 1850 (9 cred.; jr., sr.) (Not offered)

65f-66w-67s. Europe in the Twentieth Century (9 cred.; jr., sr.) I MWF Deutsch

67aw-67bs. World War II (6 cred.; jr., sr.) II MWF Deutsch

68w-69s. American History since 1900 (6 cred.; jr., sr.) VII MWF Stephenson

68af-69aw. The Immigrant in American History and Life. A chapter in social, religious, cultural, and political history (6 cred.; jr., sr.) III MWF Stephenson

70f-71w-72s. English Constitutional History. 70: The Medieval Period; 71: Early Modern Times; 72: In the Last Two Centuries (9 cred.; open to prelegal soph. with at least a C average in Courses 4-5-6, 1-2-3, or in all their college work, and to all jrs. and srs.) Lect. I MW Ross; rec. sections as follows: I F; III Th; VI F; I MWF Thompson

70w-71s. English Constitutional History (Two qtrs. of 70-71-72. See 70f-71w-72s) VII MWF Thompson

72f. English Constitutional History (Third qtr. of 70-71-72. See 70f-71w-72s) VII MWF Thompson

73-74-75. *Modern England: Tudor and Stuart Periods*. 73: 1485-1588: From Henry VII to the Defeat of the Spanish Armada; 74: 1588-1642: From the Spanish Armada to the English Civil Wars; 75: 1642-1714: From the Civil Wars to the Death of Queen Anne (9 cred.; jr., sr.) (Not offered)

73af-74aw-75as. Modern England—1714 to the Present. 73a: 1714-1783—The Eighteenth Century; 74a: 1783-1867—The Coming of Democracy; 75a: 1867-1945—Democracy, Socialism, Empire, and War (9 cred.; jr., sr.) II MWF Holmes

76f-77w-78s. Canadian History and Canadian American Relations. 76f: Rise and Fall of the French Empire in America; 77w: From British Conquest to Federation; 78s: The Dominion of Canada from Its Formation (9 cred.; jr., sr.) III TThS Burt

79af-79bw. Foundations of National Power. A discussion of the power potentials of states in the modern world and of the areas of possible conflict. This is primarily a course for air, ground, and Naval R.O.T.C. students, but it will be open to a limited number of civilian students (6 cred.; jr., sr.; no prereq.) VI MWF Bowditch

- 80f-81w-82s. Economic History of Europe. 80f: Economic Life in Ancient and Medieval Times; 81w: Economic Developments in the Early Modern World; 82s: Economic Developments since 1750 (9 cred.; jr., sr.) I TThS Heaton
- 83f-84w-85s. American Economic and Social History. 83f: Colonial Life; 84w: From the Revolution to 1860; 85s: Developments since 1860 (9 cred.; jr., sr.) II TThS Loehr
- 83as. American Agricultural History. Development of American agriculture from the Colonial period to the present (3 cred.; soph., jr., sr.) II MWF Loehr
- 86f-87w-88s. American Colonies. 86f: In the Seventeenth Century; 87w: In the Eighteenth Century; 88s: The Revolutionary Crisis (9 cred.; jr., sr.) II MWF Tyler
- 86af-87aw-88as. Social and Intellectual History of the United States (9 cred.; jr., sr.) III MWF Tyler
- 89s. Economic History of Modern War. Economic Aspects of the French Revolution and Napoleonic Wars, and of the First and Second World Wars (3 cred.; jr., sr.) VI MWF Bowditch
- 90f-91w-92s. The American West. An interpretation of the American frontier from its establishment in the colonies to its disappearance as a factor in American life. 90f: The Colonial Frontier; 91w: Mid-America; 92s: The Far West (9 cred.; jr., sr.) III TThS Ar.
- 93f-94w-95s. American Diplomatic History. 93f: American Diplomacy, 1776-1846; 94w: The Period of National Development; 95s: The United States as a World Power (9 cred.; jr., sr.) VI MWF Beatty
- 93af-94aw-95as. Survey of Latin-American History. 93af: The Colonial Period; 94aw: The Latin-American Republics; 95as: Recent Latin-American History (9 cred.; jr., sr.) VIII MWF Beatty
- 97f-98w-99s. Minnesota and the Northwest (9 cred.; jr., sr.) III MWF Jordan

Courses numbered 150 to 200 are open to seniors, and to graduate students upon recommendation of advisers; prerequisites are appropriate lecture courses and consent of the department.

- 130-131-132. *Intellectual and Social History of Western Europe*. 130: The old regime and the enlightenment; 131: The rise of bourgeois society; 132: Industrialization and the modern society (9 cred.; jr., sr., grad.) (Not offered)
- 138f-139w-140s. History of the Scandinavian Countries (9 cred.; jr., sr., grad.) II MWF Clausen
- 143f-144w-145s. American Folklore (9 cred.; jr., sr.) I MWF Jordan
- 150f-151w-152s. Selected Readings in Ancient History (9 cred.; sr., grad.) Ar. Ar. Jones
- 153f-154w-155s. Selected Readings in Medieval and Renaissance History (9 cred.; jr., sr., grad.) VIII-IX W Krey
- 156f-157w-158s. Selected Readings in European History (9 cred.; sr., grad.)
Scandinavia. Ar. Clausen
World War II. Ar. Deutsch
Seventeenth-Century France (prereq. reading knowledge of French) VIII-IX M Wolf
Russian History (prereq. 56a-57a-58a and reading knowledge of Russian, German, or French, or consent of instructor) Ar. Anderson
Recent European History Ar. Deutsch
- 170-171-172. *Selected Readings in English History*. Tudor and Stuart periods (9 cred.; sr., grad.) (Not offered)
- 176-177-178. *Selected Readings in Canadian History* (9 cred.; sr., grad.) (Not offered)
- 180f-181w-182s. Selected Readings in European Economic History since 1700 (9 cred.; sr., grad.) VI-VII T Heaton
- 183f-184w-185s. Selected Readings in American Economic History (9 cred.; sr., grad.) VI-VII Th Loehr
- 190f-191w-192s. Selected Readings in American History (9 cred.; sr., grad.) Ar.
Third Party Movements since the Civil War. VI-VII T Stephenson
The Mississippi Valley
Readings in Minnesota and the Northwest. VIII-IX W Jordan
Social Aspects of American History with Special Reference to the Northwest (Not offered)
Problems of the Eighteenth Century. Ar. Tyler
Some Phases of Early American Social and Intellectual History

For Graduate Students Only

- 201f-202w-203s. Historical Bibliography and Criticism (1 cred. per qtr.) (Required of candidates for advanced degrees in history who do not present evidence of similar training elsewhere) IV S Steefel and others
- 208f-209w-210s. Seminar in American History (9 cred.) Ar. Ar. Loehr
- 221f-222w-223s. Seminar in Economic History (9 cred.) Ar. Ar. Heaton
- 224f-225w-226s. Seminar in Modern European History (9 cred.) Ar. Ar. Steefel
- 230f-231w-232s. Seminar in Ancient History (9 cred.) Ar. Ar. Jones
- 240f-241w-242s. Seminar in Latin-American History (9 cred.) Ar. Ar. Jones, Beatty

HOME ECONOMICS

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

The courses in Home Economics, which are scheduled below, are open to a limited number of students from the College of Science, Literature, and the Arts, as well as students from other colleges.

Students registered in colleges other than Agriculture, Forestry, and Home Economics who wish to take courses not listed below must have the written approval of the chief of the Division of Home Economics.

Students from colleges other than Agriculture, Forestry, and Home Economics who wish to take courses in related art should choose their courses, to avoid duplication of content, according to the following sequences which have been planned to accommodate nonmajors:

1. Home Economics 56A,B; Home Economics 120
2. Home Economics 20; Home Economics 56B; Home Economics 120
3. Family Life 15; Home Economics 120

Junior College Courses

- 1f. Choice and Care of Clothing. A consideration of the individual problems involved in the selection, buying, and maintenance of clothing. A study will be made of the characteristics of certain textile materials, and their suitability for various uses (4 cred.; fr.; not open to H.E. seniors; not open to students having had Family Life 15A; no prereq.) III MTWTh Bayor; IV MTWTh Bayor
- 1w. Choice and Care of Clothing (See 1f) II MTWTh Bayor; III MTWTh Bayor
- 1s. Choice and Care of Clothing (See 1f) II MTWTh Bayor
- 20f. Introduction to Related Art. A study of the art problems which are involved in the everyday life of the student (4 cred.; fr.; not open to H.E. seniors; no prereq.) II MTWF V. Goldstein; III MTWF Myren
- 20w. Introduction to Related Art (See 20f) II MTWTh V. Goldstein; III MTWTh Myren
- 20s. Introduction to Related Art (See 20s) II MTWF Myren
- 30s.* Introduction to Nutrition. A course designed for students wishing a discussion of the application of the principles of nutrition to the selection of food (2 cred.; not open to home econ. students; no prereq.) VI TTh Biester
- 31f. Introduction to Nutrition. The application of nutrition principles to food selection of college students. Includes typical student problems such as buying meals, and the relation of food to the promotion and maintenance of health (3 cred.; fr.; not open to H.E. seniors; no prereq.) III MWF Gibler; IV MWF Nymon; VI MWF Nymon
- 31w. Introduction to Nutrition (See 31f) II MWF Gibler; III MWF Gibler
- 31s. Introduction to Nutrition (See 31f) III MWF Gibler
- 34s. Nutrition Problems. A consideration of the nutrition problems most commonly met by adults and children in typical families (4 cred.; 3rd qtr. soph., jr., sr.; prereq. 31, 40, physiol. or human biol.) II MTWTh Nymon

Senior College Courses

- 52f. Introduction to Textiles. A study of textile fibers and their properties as related to fabric properties; yarn and fabric structure and design; problems in the selection of textile materials for clothing and household furnishings. Laboratory work with representative fabrics (3 cred.; for S.L.&A., Bus. Adm., Art Ed., and Univ. Coll.; no prereq.) VI-VII MWF Bayor
- 56Af:56Bs. Applications of Color and Design. The principles of design and color applied to the selection, cost, and arrangement in the fields of costume, dress, and household furnishings (3 cred. each; not open to home econ. students; no prereq. for 56A. Prereq. for 56B is 56A or H.E. 20 or permission of instructor) (Limited to 24) Schedule for 56A: VI-VIII TTh Esteros; schedule for 56B: VI-VII MWF Esteros
- 120f,w,s. Art History and Appreciation. The historical development of painting, sculpture, architecture, decoration, furniture, and costumes, studied with special emphasis on design and influence upon modern styles (3 cred.; open to Senior College and grad. students only) VIII MWF H. Goldstein(f), V. Goldstein(w,s)

* Offered on the Minneapolis campus. Intended for students in Science, Literature, and the Arts. Open to students in Home Economics only by special permission of chief of Division of Home Economics.

HOW TO STUDY

See General Studies, page 64.

HUMANITIES

Major advisers in the College of Science, Literature, and the Arts—For sequence A: Professor Castell; for Sequence B: Professor Heller.

Two major sequences in the Humanities are offered by the Humanities Division under the general provisions of the interdepartmental (or liberal arts) major which are stated on page 12. The purpose of these divisional majors is to enable the student to obtain a broad acquaintance with the whole humanities field such as would not be possible in a single departmental major.

Sequence A—This major rests upon the general Humanities courses offered in the Department of General Studies, with Senior College electives in the several departments of the Humanities Division. Specifically, these requirements are as follows:

1. Any two general Humanities courses, taken either in Junior or Senior College.
2. Nine Senior College credits in History or in the Social Science Division.
3. Nine Senior College credits in History of Art (see page 32) or Music.
4. Nine Senior College credits in Philosophy.
5. Eighteen Senior College credits in Literature (English or foreign).
6. Six Senior College credits in Humanities Proseminar.

Sequence B—This major is distinguished by its emphasis upon foreign language and a concentration in a particular period of culture. The specific requirements are as follows:

1. Two years of Senior College work in one foreign language.
2. A reading knowledge, attainment of which may be determined by examination, of at least one other foreign language.
3. Concentration on one of the four great periods of culture—Ancient, Medieval, Renaissance, or Modern. The courses in literature, history, history of art (see page 32), philosophy, and other expressions of one of these periods are to be chosen so as to complement each other. At least 90 credits are to be taken in the field of concentration, of which at least 60 credits must be in Senior College courses.

For courses labeled "Humanities," see the Department of General Studies, page 61. For all other courses in the division, see the separate departments mentioned in the above lists of requirements.

INTERNATIONAL RELATIONS AND AREA STUDIES

Purpose of the programs—Reflecting the increasing interest of students in world affairs, several programs in International Relations and Area Studies have been developed to enable students to cross departmental lines in order to obtain a comprehensive understanding of the civilization—the way of life—of a people. Essentially these programs are of a broad, cultural nature, but they may also be considered preparatory to various types of professional careers in public service, business, education, and other pursuits.

The areas are viewed on the basis of the culture or the civilization of their people rather than upon a geographical basis. The core of the International Relations and Area Studies is an integrated course or group of courses in the social, political, economic, and esthetic ideas and institutions of the area, supplemented by related courses in the social sciences, and language. For full information on these studies at both the undergraduate and graduate levels, one should consult the special bulletin entitled "Programs in International Relations and Area Studies." Some of the essential features are indicated below.

Courses in the Junior College—All students must satisfy the group requirements in English, a foreign language, natural science, social science, and public health. While circumstances of anticipated major interests may alter cases, the courses listed below are deemed most generally suitable as background and prerequisites for Senior College work. Students, in consultation with an adviser, will select from them a suitable program. Consultation should begin as early as possible, preferably upon entrance into the University.

A. Social Sciences

Anthropology 40	Introduction to Anthropology	(5)
Economics 6-7	Principles of Economics	(10)
Geography 11	Human Geography	(5)
Geography 41	Geography of Commercial Production	(5)
History 1-2-3	Civilization of the Modern World	(9)
History 20-21-22	American History	(9)
Political Science 1-2-3	American Government	(9)
Political Science 7	Comparative European Government	(3)
Political Science 9-10	Fundamentals of Government and Politics	(6)
Political Science 25	World Politics	(3)
Social Science 1-2-3	Introduction to Social Science	(12)
Sociology 1	Introduction to Sociology	(5)

B. Language

To be selected in relation to the anticipated area of concentration.

C. Fine Arts and Philosophy

Art 1	Introduction to Art	(4)
Humanities 1-2-3	Humanities in the Modern World	(15)
Philosophy 1	Problems of Philosophy	(5)
Philosophy 20	Social Philosophy	(3)

Courses in the Senior College—In consultation with a major adviser the student will select courses totaling 45 credits, equivalent to a major and a minor, in an area of concentration. At least 18 credits will be obtained in the social sciences and 6 credits in an honors course or proseminar designed to integrate the whole program.

Proficiency in the selected language is an important asset for those who contemplate a career in or related to a particular area. Students are free to complete their programs in accordance with their cultural or vocational interests.

Courses specifically related to the several areas are described in detail in the special bulletin, "Programs in International Relations and Area Studies" and cover the following fields: (1) Western Europe, (2) Central Europe, (3) Russia, (4) The Far East, (5) Latin America, (6) Scandinavia. Students may also wish to consult the special bulletin on "Preparation for the Foreign Service" and the one on "American Studies."

Major advisers in the program are as follows: Messrs. Lawrence D. Steefel (Western Europe), Harold C. Deutsch (Central Europe), George Anderson (Russia), Harold S. Quigley (The Far East), Emilio C. LeFort or James Cuneo (Latin America), and Alrik Gustafson (Scandinavia).

JAPANESE

- 1f-2w-3s. Beginning Japanese. 1f: Introduction to conversational Japanese using romazi; 2w: Reading of text in Japanese; instruction in writing of characters, use of Chinese-Japanese character dictionary and further conversation; 3s: Advanced work in the language using the above method (15 cred.; no prereq.) VII MTWThF Syro-Boyarsky
- 51f-52w-53s. Advanced Japanese. Study of grammatical construction; drill in conversation; reading Japanese text (9 cred.; jr., sr.; prereq. 3) VIII MWF Syro-Boyarsky
- 61f-62w-63s. Advanced Japanese Reading. Training in the reading of various forms of Japanese writings: prose, poetry, and the literary language (9 cred.; jr., sr.; prereq. 51-52-53) Ar. Ar. Syro-Boyarsky

JOURNALISM

SCHOOL OF JOURNALISM

Major advisers in the College of Science, Literature, and the Arts—Professors Casey, Barnhart, Charnley, Gerald, and Nafziger; Associate Professors Ford and Kildow; Assistant Professors Duncan and Emery; Lecturer Hovey; Instructors Hage, Janson, Jensen, Patterson, and Wilson.

Adviser for students in other colleges—Professor Casey.

Professional preparation for careers in journalism is provided by a major in the School of Journalism leading to the degree of bachelor of arts (degree requirements are described on page 11). This preparation is triple-based: It involves a broad cultural education, a thoro understanding of the social implications and professional responsibilities of a free press, and a fundamental knowledge of journalistic techniques and procedures.

To provide his broad general education—the basic background which enables him to know and understand the historic, social, economic, and cultural cross-currents projected into the contemporary world in which he is to live and work—the journalism major student is asked to meet Junior College requirements of the College of Science, Literature, and the Arts, and to design a Senior College program, in consultation with his major adviser, which supports and supplements his specialized training. Emphasis in this supporting work, tho it is always chosen to meet the individual student's needs, is largely upon the social studies, the humanities, and literature. About three fourths of the student's credit hours are devoted to work of this kind.

The student's knowledge of the communication agencies as social institutions, and of the special techniques of the agencies in which he wishes to prepare himself, is provided by work beginning with one course in basic journalistic writing in the sophomore year and continuing with a major sequence "core group" and elective courses in junior and senior years which, occupying a little less than half of his Senior College time, prepare him for the journalistic field or fields of his choice. These fields, some of which overlap or require substantially similar preparation, are: Newspaper reporting, editing and other editorial work (daily and weekly); newspaper circulation, editorial administration and business management (daily and weekly); advertising and promotion; radio news editing and script writing; press association work; magazine writing, editing and administration; book editing and publishing; agricultural or home economics journalism; public relations and public opinion; media analysis and audience and content research; journalism teaching; journalistic research.

Freshmen who are interested in journalism or those who think that they may enter the school at a later time are urged to discuss their course programs with members of the journalism staff.

It is recommended that the prejournalism student meet Junior College requirements (see page 9) whether he elects Plan I or II, so as to include substantial basic work in the following fields:

Social studies—Social Science 1-2-3 or economics or history or political science or sociology, or a combination of courses in these fields.

Natural science—Natural Science 1-2-3 or 4-5-6 or psychology (with laboratory) or chemistry or physics, or a combination of courses in these fields.

Humanities—French, Spanish, or German; humanities; philosophy; speech; English or American literature.

All prejournalism students must meet the freshman English and public health requirements in manner described on page 10. All must include Composition 27-28 and Journalism 13 in their Junior College programs. All except those planning to enter the journalism major for students specializing in advertising must include also Journalism 14-15. Advertising specialists must include Journalism 18.

Electives to make the required Junior College total of 84 to 90 credits should include courses from the areas listed above, or other areas chosen in consultation with the journalism adviser. Especially recommended courses are: History 20-21-22, Political Science 1-2 and Economics 6-7. Other electives recommended as providing, in most cases, a sound foundation for major work in journalism are: Political Science 7, 25; Sociology 1, 2; Psychology 1-2; History 1-2-3, 17; Social Science 1-2-3; Natural Science 1-2-3, 4-5-6; two or more quarters of Humanities; Geography 11, 41; English 37-38-39.

No student whose average is lower than C will be permitted to enroll in any journalism course, either Junior College or Senior College.

Major sequence in the College of Science, Literature, and the Arts—Courses 51-52, 55, 73, 101, 109-110, 140-141-142, and 9 additional credits in journalism chosen in conference with the adviser. (*Modified major sequences for students in advertising or management in agricultural or home economics journalism are described below.*) Students of marked ability may substitute for these 9 additional credits Senior College courses in other departments with the approval of the major adviser in journalism.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major sequence for journalism students with advertising specialization—Courses 51, 55, 65, 73, 86, 94, 104, Psychology 56, B.A. 77 and 88, and 6 hours of electives in journalism, or related social sciences, or other approved areas. Junior College requirements include: Journalism 13 and 18, Psychology 1-2, 4-5 (4-5 may be omitted if the student has met the Natural Science requirement), Composition 27-28, Economics 5 and 6-7 (B.A. 70 in the Senior College will be accepted in lieu of Economics 5).

Minor sequence for such students—A student may meet the minor requirement by a minor sequence of 15 credits or two minors of 9 credits each, in Senior College courses in the College of Science, Literature, and the Arts, or by a special 15-credit sequence to be chosen from the following courses: B.A. 51, 53, 69, 112, 180 (C Marketing), 194, Economics 84, 110, 175, Psychology 140.

Students wishing special training in commercial design are advised to elect 9- or 15-credit minors from among Art 53, 54, 55, 63, 64, 65.

Major sequence for journalism students with newspaper management specialization—Courses 51, 55, 65, 73, 86, 94, 95, and 112; and 15 additional credits chosen in conference with the adviser from among 78, 86, 99, 101, 104, 109-110, 115, 121, 130-131, 140-141, and 177.

Minor sequence for such students—Courses B.A. 77 and 88 and Psychology 56, and 6 additional credits selected from among Drawing 64, B.A. 69 and 194, Journalism 130 and Psychology 140. Junior College prerequisites are Economics 6-7 and Psychology 1-2. Prerequisite for B.A. 194 is Economics 5 or B.A. 70.

Radio-Journalism specialization—Journalism majors with professional interest in radio news work, script and continuity writing, radio advertising, or station administration may elect courses in journalism and speech, in conference with their advisers, to meet elective requirements and minor requirements. Such students usually elect from among Journalism 63, 67, 68, and 130-131, and Speech 65 and 66.

A number of courses offered by the School of Journalism, giving special attention to communications and public opinion problems, are of general interest. Among them are: 5, 63, 111, 112, 115, 130-131, 177, and 205.

Combined curriculum in Journalism and Agriculture—This curriculum is intended for those who wish to prepare for some branch of journalism which relates to agriculture. Students intending to major in agricultural journalism may register in the College of Science, Literature, and the Arts or in the College of Agriculture, Forestry,

and Home Economics. For the complete curriculum, students should consult advisers in either the School of Journalism or the office of the dean of the College of Agriculture, Forestry, and Home Economics.

Combined curriculum in Journalism and Home Economics—This curriculum prepares students for professional work in areas of newspaper, magazine, advertising, radio, public relations, and other journalistic activity in which proficiency in home economics subject matter is necessary. The curriculum offers a major journalism sequence combined with general home economics background and specialization in selected home economics fields. Its flexibility makes it possible to suit its requirements to the individual needs of each student. Students electing the curriculum register in the College of Science, Literature, and the Arts. They design their programs in consultation with major advisers in both the School of Journalism and the Division of Home Economics.

Minor sequence—For students in the College of Agriculture, Forestry, and Home Economics, the Institute of Technology, and the School of Business Administration: Courses 11, 41, 69, and 6 additional credits in Senior College journalism courses, to be chosen in conference with the adviser. Courses 78, 110, 111, 121, and 130 are recommended.

Minor sequence in the College of Education—Courses 11, 41, 69, 82, and at least 6 additional credits in Senior College journalism courses.

Course Ed.T. 74 offered by the School of Journalism and listed under "Methods and Directed Teaching" in the program of the College of Education is also required in this sequence.

Fees—Students registered for any journalism course, except Course 5, are required to pay a general fee of \$1 a quarter, regardless of the number of courses pursued. Courses 10, 41, 51, 52, 55, 58, 66, 67, and 68 require laboratory fees in addition.

Junior College Courses

- 5s. The American Newspaper. A survey of the history, organization, and methods of contemporary journalism and an analysis of the relation of newspapers to their readers (3 cred.; 3rd qtr. fr., soph. with average of C, jr., sr.; not open to journalism majors; no prereq.) II TThS Ford
- 10f,w,s.† Photography. Fundamental principles of photography: the use of cameras, developing, printing and other elementary techniques (the same as Art 10) (3 cred.; soph., jr., sr.; no prereq.) Lect. V T; lab. VI-VII MW; I-II WF Nestler
- 11f. Introduction to Reporting (for journalism minors in the College of Agriculture, Forestry, and Home Economics, College of Education, Institute of Technology, and the School of Business Administration) (3 cred.; soph., jr., sr., with average of C; prereq. Eng. A-B-C or Comp. 4-5-6 or Com. 1-2-3 or Rhet. 1-2-3 or exemption from English requirement) I MWF Janson; I TThS Patterson; IV MWF Ford
- 11w. Introduction to Reporting (See 11f) II TThS Ford
12. *Newspaper Reporting* (for majors) (5 cred.; substantially equivalent to 13, 14; soph., jr., sr., with average of C; prereq. Eng. A-B-C or Comp. 4-5-6 or Com. 1-2-3 or exemption from English requirement, and consent of instructor) (*Not offered*)
- 13f. Introduction to Reporting (for majors) (3 cred.; soph., jr., sr., with average of C; prereq. Eng. A-B-C or Comp. 4-5-6 or Com. 1-2-3 or exemption from English requirement) I-II MWF Hage; III-IV MWF Gerald; VI-VII MWF Patterson; VIII-IX MWF Charnley; I-II TThS Hovey; III-IV TThS Emery; VI-VIII TTh Jensen; III-IV MWF Hiebert
- 13w. Introduction to Reporting (See 13f) I-II MWF Duncan; III-IV MWF Emery; VI-VII MWF Hage; I-II TThS Kearl; VI-VIII TTh Jensen
- 14w,s.15f,s. Newspaper Reporting (for majors) (6 cred.; soph., jr., sr.; prereq. for 14, C average in 13 and in all work, or consent of instructor, and Comp. 27-28§; for 15, C average in 13-14 and in all work, or consent of instructor, and Comp. 27-28§) Schedule for 14w: I-II MWF Hage; III-IV MWF Janson; VI-VII MWF Patterson; VIII-IX MWF Jensen; I-II TThs Hovey; III-IV TThs Ar.; VI-VIII TTh Charnley. Schedule for 14s: I-II MWF Patterson; III-IV MWF Kearl; VI-VII MWF Jensen; I-II TThs Janson. Schedule for 15f: I-II MWF Hovey; VI-VII MWF Emery; VIII-IX MWF Gerald; I-II TThs Duncan; VI-VIII TTh Hage. Schedule for 15s: I-II MWF Hovey; III-IV MWF Duncan; VI-VII MWF Patterson; VIII-IX MWF Jensen; I-II TThs Charnley; VI-VIII TTh Hage

† A fee of \$5 is charged for this course.

§ May be taken at the same time.

- 18s. Principles of Advertising. A basic foundation for beginners in advertising. Theorem principles, and functions of advertising. Relation of advertising to modern business organization and its place in marketing and distribution. Choice of appeals and media. Appropriations, schedules, campaigns. A survey of copy, layout, testing, and the laws affecting advertising (3 cred.; soph., jr., sr.; prereq. 13, C average, and Comp. 27-28§) III TThS Ar
- 41w.† Editing for Nonmajors (not open to S. L. and A. students without permission of the director of School of Journalism) (3 cred.; jr., sr.; prereq. 11 or 13) Lect. I WF or IV MW Ford; lab. sections as follows: VI-VII M; VI-VII W; VI-VII Th; VIII-IX M; VIII-IX W; I-II T; I-II Th; III-IV T; III-IV Th; VII-VIII T

Senior College Courses

Senior College courses in the School of Journalism are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 51f.†† News Editing (3 cred.; jr., sr.; prereq. 14 and Senior College standing) Lect. V T Kildow; lab. sections as follows: VI-VII T; VI-VII Th; VIII-IX M; VIII-IX W; VIII-IX F; I-II T; I-II Th
- 51w.†† News Editing (See 51f) Lect. V Th Janson; lab. sections as follows: VIII-IX T; VIII-IX Th; III-IV T
- 51s.†† News Editing (See 51f) Lect. V T Patterson; lab. sections as follows: III-IV W; VI-VII Th; III-IV T; III-IV Th; III-IV F
- 52f.† News Editing (3 cred.; jr., sr.; prereq. 51 and 55) Lect. V T Emery; lab. sections as follows: VIII-IX TTh; VI-VII MF; VIII-IX WF; III-IV MW; Ar.
- 52w.† News Editing (See 52f) Lect. V T Kildow; lab. sections as follows: VIII-IX TTh; III-IV ThS; VI-VII MW; VIII-IX WF; III-IV MW; one additional section arranged
- 52s.† News Editing (See 52f) Lect. V T Janson; lab. sections as follows: VIII-IX TTh; VI-VII WF; III-IV MF
- 55f.† Advertising and Newspaper Typography (3 cred.; jr., sr.; prereq. for journalism majors, Senior College standing; for minors, 11 or 13 and 41) Lect. VII M Barnhart (Students in this lecture section must enroll in the first two lab. sections) VIII-IX MW Barnhart; VI-VII TTh Barnhart. Lect. II F Wilson (Students in this lecture section must enroll in the following lab. sections) VI-VII WF; I-II MW; III-IV MF; I-II TTh; III-IV TS
- 55w,s.† Advertising and Newspaper Typography (See 55f) Lect. VII M Barnhart (Students in this lecture section must enroll in the following lab. section) VIII, IX MW Barnhart. Lect. II F Wilson (Students in this lecture section must enroll in the following lab. sections) VI-VII WF; I-II MW; I-II TTh; III-IV TS
- 58w.†† Advanced Typography. Individual projects in advertising composition, newspaper makeup, and booklet planning (2 cred.; jr., sr.; prereq. 55 and consent of instructor) Ar. Ar. Barnhart
- 63f. Development of Radio Broadcasting. Historical and economic growth of broadcasting; government regulation; radio and the press; radio as a social factor; aspects of listenership; broadcasting in other countries (3 cred.; jr., sr. journalism majors and speech-radio majors; prereq. 15 for journalism majors, 13 or consent of instructor for speech-radio majors) III TThS Charnley
- 65f,s. Graphic Arts: Processes. Reproduction processes—letter press, planography, intaglio; also engravings, inks, paper stocks, binding, and miscellaneous printing operations (3 cred.; jr., sr.; prereq. consent of major adviser in the School of Journalism or in the School of Business Administration) IV MWF Barnhart(f), Wilson(s)
- 66f,w,s.††† News Photography. The analysis, use, and influence of the news picture; picture editing, use of the news camera (3 cred.; jr., sr.; prereq. 10, 15, and consent of instructor) Lect. VIII M; lab. I-II TTh; VIII-IX WF Kildow
- 67f,w,s.†† Radio News Writing. The gathering, writing, and editing of news for broadcast; "back-grounding" and commenting on the news. In laboratory, students edit news programs for KUOM (3 cred.; jr., sr.; prereq. 15) Lect. VII WF Charnley(w), Jensen(f,s); lab. III-IV Ar.
- 68s.†† Problems in Radio Writing. The radio audience and its responses; planning and writing scripts in advertising, dramatics, public affairs and other radio fields; training in fundamental broadcasting; production problems; program-planning; radio station organization (3 cred.; jr., sr.; prereq. for journalism majors, 51 and consent of instructor; for speech-radio majors, 13 and consent of instructor) VI MWF Charnley

† A fee of \$3 is charged for this course.

†† A fee of \$2 is charged for this course.

††† A fee of \$5 is charged for this course.

§ May be taken at the same time.

- 69s. Newspaper and Magazine Articles (for minors only). Technique of writing feature articles for newspapers and magazines. Study of markets open to free-lance writers. Analysis of published articles. Writing and submitting articles for publication (3 cred.; jr., sr.; prereq. 41) I MWF Hage
- 73f,s-74w. Magazine Writing and Editing. 73: Planning and writing feature articles for general, class and trade publications; marketing; problems of magazine editing. 74: Individual projects in advanced feature writing and in magazine editorial work (6 cred.; jr., sr.; prereq. for 73, 15; for 74, 73 and consent of instructor) Schedule for 73f: VI MWF Charnley, Hage; one additional section arranged. Schedule for 73s: I MWF Kildow; VI MWF Ar. Schedule for 74w: VI MWF Charnley
- 76f. Critical Writing. The theory and practice of writing book, theater, and motion picture reviews. Analysis of the work of leading critics and critical periodicals. Weekly reviews are written (3 cred.; jr., sr.; prereq. consent of instructor) II TThs Ford
- 78f. Public Relations. Theories and techniques of the public relations function; the public relations counsel and publicity expert; study and production of public relations programs and campaigns for industry, social agencies, government (3 cred.; jr., sr.; prereq. 15 or 69) I MWF Kildow
- 82s. Supervision of School Publications. For those who plan to become advisers of high school or college newspapers, yearbooks, magazines. Course emphasis is upon editorial content, staff organization, editing, typography, makeup and business management of such publications (3 cred.; jr., sr.; prereq. 41 or 51) VII MWF Kildow
- 86f,w,s. Advertising Copy Writing. Advertising media; advertising appeals; techniques of writing advertising copy for periodicals, radio, direct mail, posters, brochures; the advertising campaign (3 cred.; jr., sr.; prereq. 51 or 41, and 55 and 65) VI MWF Ar.
- 93f. Weekly Editorial Administration. News and editorial problems of the small-town weekly newspaper. Local and trade-area news, news departments, features, payroll, and other news and editorial costs. Stresses news and editorial responsibility (3 cred.; jr., sr.; prereq. 51 or concurrent registration in 51) II TThs Barnhart
- 94w. Newspaper Advertising. The role of newspaper advertising; the newspaper's relations with the retail advertiser, national representative, and advertising agency; organization of advertising departments; rate structure; services. Practice in writing advertising copy, with particular emphasis upon retail advertising. Enrolment of nonmajors is sharply limited (3 cred.; jr., sr.; prereq. 51 and 55, or 41, 55 and consent of instructor) II TThs Barnhart
- 94s. Newspaper Advertising (See 94w) I TThs Gerald
- 95s. Circulation and Newspaper Management. The over-all management problem, including advertising, circulation, and commercial printing as sources of income; bookkeeping and cost accounting; plant layout and inventories; operating expenses; business policies (3 cred.; jr., sr.; prereq. 51) II TThs Barnhart
- 99f,w,s. Readings in Journalism (Cred. ar., not to exceed 3; sr. journalism majors only; prereq. B average in journalism courses and consent of the director of the school) Ar. Ar. Staff
- 101w. The Reporting of Public Affairs. Training in reporting court trials, city, county, state, federal, administrative and legislative agencies; politics, business, and labor. Students attend and report trials, hearings, legislative sessions and press conferences (3 cred.; jr., sr., grad.; prereq. 51) III TThs Nafziger, Hovey, and one additional section arranged
- 101s. The Reporting of Public Affairs (See 101w) III TThs Duncan; III MWF Hage
- 103s. Literary Aspects of Journalism. The literary, creative aspects of journalism as exemplified in the works of English and American fiction writers, poets, critics, essayists, and humorists. Lectures, discussions, and weekly papers (3 cred.; jr., sr., grad.; prereq. consent of instructor) IV MWF Ford
- 104s. Advanced Newspaper Advertising. Advanced work in copy testing methods; sales programs and newspaper sales promotion; advertising salesmanship (3 cred.; jr., sr., grad.; prereq. 51, 94, and consent of instructor) VIII TThs Barnhart
- 109w-110s. History of Journalism. 109w: Development of newspapers and periodicals from early beginnings in Europe through the 1860's in the United States. 110s: The emergence of modern journalism in the post-Civil War period (6 cred.; jr., sr., grad.; prereq. 13 and Senior College standing) II MWF Ford, Emery
- 111f. International Communications. A study of international news channels, including communications facilities, the newsgathering agencies. The role of foreign correspondents and factors affecting the flow of news throughout the world (3 cred.; jr., sr., grad.; prereq. 51 and a history or political science course in international relations, or consent of instructor) II MWF Nafziger
- 112w. Comparative Foreign Journalism. A study of the press in the principal foreign countries. Similarities and differences among the press systems; cultural, technological, and economic bases for differences. The group press and the popular press. Press systems compared and contrasted with the newspapers of the United States (3 cred.; jr., sr., grad.; prereq. 111 or consent of instructor) II MWF Casey, Nafziger

- 115s. Communication Media Analysis. Methods developed recently for analyzing the content and reader- or listenership of newspapers, periodicals, radio broadcasts, and motion pictures. Attitude studies and reading tests involving these media (3 cred.; jr., sr., grad.; prereq. 51 and consent of instructor, or Econ. 5 or Psy. 70 or equivalent and consent of instructor) III MWF Nafziger
- 121w. The Newspaper in a Dynamic Society. The political environment of the newspaper, past and present, and the economic climate in which it lives. Industrialization, urbanization, and other social trends as they affect the newspaper. Patterns of newspaper ownership—private, cooperative, and subsidized—and their evaluation. The newspaper of the future (3 cred.; jr., sr., grad.; prereq. 15 or consent of instructor) IV MWF Gerald
- 130f-131w. Communication Agencies and Public Opinion. The major agencies of communication—press, radio, television, and motion pictures—and their role in the opinion-forming process. Theories of public opinion formation and propaganda; propaganda techniques of governments, political parties, pressure groups, and other organized bodies (6 cred.; jr., sr., grad.; prereq. for 130, 15 cred. in the social studies; for 131, 130) III MWF Casey
- 140f-141w. Interpretation of Contemporary Affairs. Analysis of major political, economic, and social developments that have public interest and significance. Interpretation of such developments in the editorial, interpretative article, and commentary. A study of authoritative source materials in the backgrounding of the news (6 cred.; sr., grad.; prereq. 51 and 10 cred. in the social studies or consent of major adviser in journalism) Lect. VI TTh Staff; rec. VII T
- 142s. Current Newspaper Problems. The individual project method is used for analyses of communication problems of current importance in the light of their social, economic, and technological environment. The course is conducted in small seminar-like groups. (3 cred.; sr., grad.; prereq. 51) VI-VII TTh Staff
- 150s. Public Relations in Community Services. Principles and practices of public relations and educational campaigns in public health, social work, and other community service fields (2 cred.; sr., grad.; prereq. consent of major adviser and instructor; not open to those who have had Journalism 78, nor ordinarily to journalism majors) VIII-IX Th Emery
- 177s. Freedom of the Press and Communications Law. The Anglo-American concept of freedom of speech and press, its development under the Constitution of the United States, and the areas of tension today. Municipal, state, and federal regulations affecting newsgathering and news dissemination. The problems of international freedom of press and radio (3 cred.; jr., sr., grad.; prereq. 51 or consent of instructor) IV MWF Gerald

For Graduate Students Only

- 205f,w,s. Topics in International News Communications (3 cred.; seminar for grad. students; prereq. consent of director of the school) Ar. Nafziger
- 208s. Communications Agencies as Social Institutions. Influence of political, social, and economic forces upon the national character and performance of press, radio, and other mass media, and the examination and evaluation of their responsibility for social leadership (3 cred.; grad.; prereq. consent of adviser) Ar. Ar. Gerald
- 210f,w,s. Research in Newspaper Problems (2 or 3 cred.; seminar course for grad. students; prereq. consent of director of the school) Ar. Casey, Nafziger, Gerald

LATIN

See Classics, page 46.

LIBRARY INSTRUCTION

Major advisers—Professor McDiarmid, Associate Professors Strout and Hayner.

The College of Science, Literature, and the Arts offers two programs for students who are interested in preparing for librarianship as a career:

1. A program leading to the degree of bachelor of science in library science at the completion, normally, of five academic years of college study.
2. A program leading to the degree of bachelor of science with a major in library science at the completion of four academic years of college study.

For either course the student must complete the requirements for admission to the Senior College, given on pages 9-11 and is subject to all the regulations which govern the work of other Arts students. He must present and maintain during his Library Science program a scholarship average of C.

Bachelor of science in library science degree—All candidates for the B.S. in L.S. degree must complete 45 quarter credits in library science and approved related subjects. These credits include a specified core of basic library subjects plus electives in fields of special interest to the student.

Students with a Bachelor's degree normally satisfy this requirement in three quarters of resident study.

Students with two years of college begin the election of library courses during their junior year, while still concentrating on the requirements for the regular B.A. or B.S. degree. The regular Bachelor's degree is granted as usual at the close of the senior year. A fifth year of study (an additional 45 quarter credits) primarily in library science is then necessary for the B.S. in L.S. degree.

Whenever possible, the three-year program should be elected in order to facilitate the planning of extra-library studies in subjects of greatest value to the prospective librarian. The selection of major and minor subjects, or of courses in the less specialized "liberal arts" program, should not be undertaken without guidance from the faculty of the Division of Library Instruction.

Bachelor of science with a major in library science—Altho the professional courses in library instruction are offered primarily for candidates for the B.S. in L.S. degree, qualified students with junior or senior standing may elect the library program (45 quarter credits) as a major subject toward the B.S. degree. This four-year program is continued in the present emergency to help meet a critical shortage of librarians. Students are strongly advised, however, to take the full five-year program whenever possible. Admission to the second (or graduate) year of library schools offering advanced work in this field is usually conditioned on at least five years' preparation (four full years of college work plus one year of library training). Most of the more responsible library positions have the same requirements, and graduates without this five-year preparation are becoming increasingly handicapped in obtaining desirable employment.

Programs of instruction—Courses of instruction are offered for students who wish to prepare for work in public libraries, college and university libraries, and hospital libraries. These consist, first, of certain basic courses required of all candidates for the B.S. in L.S. degree or the B.S. degree with a major in library science; second, of a group of general electives; and third, of special electives for students preparing for work in different types of libraries. The special electives include selected courses offered by other departments of the University but approved for inclusion in the library curriculum. All course offerings are subject to change without notice.

A course in hospital librarianship is offered in cooperation with the Minnesota State Department of Social Security. This course consists of basic courses in library science followed by a spring quarter program of courses in hospital librarianship. As recommended preparation for this program, students should take the following courses or their equivalents: Psychology 1-2 (General Psychology, 6 credits); Psychology 144-145 (Abnormal Psychology, 6 credits); Public Health 50 (Public and Personal Health, 3 credits); Sociology 1 (Introduction to Sociology, 5 credits); Sociology 49 (Social Problems, 3 credits); Zoology 1-2-3 (General Zoology, 10 credits).

The following courses from other departments are accepted as a part of the 45 credits required for a major in Library Science: C.W. 80, Child Psychology; C.W. 131, Personality, Emotional, and Social Development of the Child; C.W. 132, Later Childhood and Adolescence; Ed. 71C, Introduction to Elementary School Teaching; Ed.Ad. 253, Administration in Higher Education; Ed.C.I. 104, Adult Education; Ed.C.I. 105, Visual Aids in Teaching; Ed.C.I. 113, High School Curriculum; Ed.C.I. 119, Elementary School Curriculum; Ed.C.I. 250, Higher Education in the United States; History 201, Historical Bibliography and Criticism; Political Science 120, Municipal Functions; Political Science

121, Municipal Administration; Political Science 122, Municipal Problems; Political Science 131, Public Administration: Organization and Areas, Administrative Responsibility; Political Science 132, Public Administration: Personnel Administration; Political Science 133, Public Administration: Financial Administration; Sociology 162, Rural Social Institutions.‡

Library tuition—(For all Library courses except Lib. Sci. 1). Students taking 12 credits or more of library courses will pay the full tuition rate for Library Instruction, \$42 residents, \$75 nonresidents and may take courses in other departments with no additional fee. Students taking less than 12 credits of library courses will pay the credit hour library rate for library courses and the credit hour college rate for other courses.

Junior College Courses

Note—Library Science 1 is not a part of the professional curriculum of the Division of Library Instruction. Library Science 50 to 126 are professional courses open only to students in the Senior College or graduates. Students seeking the degree of B.S. in L.S. or a major in Library Science should begin courses in Library Science during their junior year. Under certain conditions, however, the 45 credits in Library Science may be taken in one year.

1f,w,s.¶ Use of Books and Libraries. Study of reference material for personal study and research. No credit toward a degree in library instruction, but general credit is given in the College of Science, Literature, and the Arts (2 cred.; fr., soph. only; no prereq.) II MW; IV MW; VI MW

Professional Courses

- 50f.* Libraries and Society. History of libraries; types of libraries, library agencies and services; libraries in the modern world; librarianship as a profession (3 cred.; no prereq.) IV MWF Strout
- 51f. Origins of the Book. Survey of writing and the materials and methods of writing from earliest times through the spread of printing in the fifteenth century (2 cred.; no prereq.) Ar. Ar. Strout
- 52w. History of Publishing. Publishers and publishing from the sixteenth century to the present (2 cred.; no prereq.) Ar. Ar. Strout
- 53s. School Library Administration and Practice. The organization and management of libraries in schools (4 cred.; prereq. Ed. 51A-B-C, or Ed.Ad. 263, or Pol.Sci. 121) II MWF and 1 hour ar. Hayner
- 54s. Public Library Administration. Management problems in public libraries; finance, personnel, equipment, extension work, etc. (3 cred.; prereq. Pol. Sci. 121) I MWF Phillips
- 55s. College Library Administration. A survey of administrative problems in libraries of institutions of higher education (3 cred.; prereq. Pol.Sci. 121) II MWF Strout
- 56s.*§ Current Issues. Reading in professional library literature on the unsolved problems and current issues of librarianship (1 cred.; prereq. 15 cred. in Lib.Sci.) III Th McDiarmid
- 57s. School Library Problems. Organization and administration of libraries in large units. Relationships of school libraries and public libraries. School library records. Budgeting. Professional training of school librarians (3 cred.; prereq. Lib.Sci. 53) II TThS Ar.
- 60f.* Sources of Information about Library Materials. Reviewing media, "best" lists, trade bibliographies, etc. Principles of book selection and order work (3 cred.; no prereq.) III MWF Hayner
- 61f,w,s.*§ Library Practice. Practice under supervision in Minneapolis and St. Paul libraries. The time and character of the practice will be individually arranged to suit student aptitudes and needs, usually in the second and third quarters (3 to 4½ cred.; prereq. 15 cred. in library science or satisfactory library experience.) Ar. Ar. Strout, Hayner
- 62f.* Reference I. General reference tools and other sources of information in reference work; theory and practice of reference work (2 cred.; no prereq.) III TTh Strout
- 63w.* Reference II. Reference work in subject fields; the reference department; practical bibliography (3 cred.; prereq. 62) IV MWF Strout

* Required of all candidates for a degree in library science.

‡ A fee of \$1.50 per credit is charged for the following courses: Ed. 71C, Ed.C.I. 104, Ed.C.I. 105, Ed.C.I. 113, Ed.C.I. 119, Ed.C.I. 250.

§ This course is not required of those students who are taking the special program of hospital library courses which the division offers.

¶ For students in the College of Science, Literature, and the Arts. Others may obtain a special card from the Junior College office.

- 64s. Reference III. Specialized reference tools; government publications; administration of the reference department; special problems in large libraries (2 cred.; prereq. 62, 63) I TTh Strout
- 65w. National and Regional Bibliography. The most important national and regional bibliographies in English and other languages; their use as aids in book selection and acquisition; the history of bibliography (2 cred.; no prereq.) III TTh Shove
- 66f. The Literature and Bibliography of Education. General bibliographies covering United States and foreign publications. Special subject bibliographies. Sources of information in special fields of education (3 cred.; no prereq.) III TThS Hayner
- 70f.* Reading Guidance. The library user, his personality and background; the matching of book and user and the improvement of reading habits (3 cred.; no prereq.) I MWF Hayner
- 71s. Reading Guidance for Children. The reading interests of children; book selection and reading guidance; the children's room, its organization and administration (3 cred.; prereq. 70) IV MWF. Ar.
- 72s. Reading Guidance for Adolescents. Book selection and reading guidance for the adolescent; the adolescent in the public library and in the high school library (3 cred.; prereq. 70) III MWF Hayner
- 73w. Reading Guidance for Adults. Factors affecting adult use of the library; reading interests of adults; book selection for adults; biography of the book world (3 cred.; prereq. 70) III MWF Strout
- 74w. Library Materials in the School's Instructional Program. How to locate library materials. Sources of information about books and other teaching materials. Methods of cooperation between teachers and librarians (2 cred.; no prereq.) IV TTh Hayner
- 76s. Library Service in Hospitals. Organization and technical methods suitable for hospital libraries (3 cred.) I TThS Jones and others
- 77s. Book Selection for Hospital Patients. Criticism and discussion of reading suitable for varied types of patients (3 cred.) III MWF Stubkjaer and others
- 78s. Reading and the Mental Patient. Special problems of work with varied types of mental patients (2 cred.) III TS Jones and others
- 79s. Medical Reference Work. Reference books and technical methods for hospital staffs (3 cred.) II MWF Kingsley
- 80s.§ Hospital Library Practice—A six-week internship in approved hospitals (4 cred.; prereq. 76, 77, 78, 79; specific arrangements for this practice will be made after the close of the class work early in June) Ar. Ar. Stubkjaer
- 81f.* Theory of Bibliography. Introduction to the description and arrangement of books in catalogs, bibliographies, and on library shelves (2 cred.; no prereq.) I TTh Hummel
- 82w.* Cataloging and Classification. Methods of dictionary card cataloging and shelf classification, especially for small libraries; Sears' *Subject Headings* and Dewey's *Decimal Classification* (4 cred.; no prereq.) VII-VIII MWThF Hayner
- 84s. Subject Cataloging and Classification. History of book classification and the classification of knowledge; comparison of modern subject schemes; the Library of Congress classification and subject headings (3 cred.; prereq. 81, 82) III MWF Hummel
- 85w,s. Special Problems. Individual study on library problems for advanced students in Library Science (1 to 3 cred.; prereq. approval of director, Division of Library Instruction) Ar. Ar. McDiarmid, Strout, Hayner
- 126s. Subject Bibliography. The bibliography of subject fields; standard works, current lists, and bibliographical manuals (3 cred.) II TThS Ar.

LINGUISTICS AND COMPARATIVE PHILOLOGY

Major adviser in the College of Science, Literature, and the Arts—Professor Heller.

Major sequence in the College of Science, Literature, and the Arts—Courses Classics 106-107, Anth. 105 or Classics 108, and at least 18 additional credits in courses listed below, chosen after consultation with adviser. All candidates are expected to have a fair knowledge of Latin.

GENERAL COURSES

Anth.105. Elements of Language. A survey of speech sounds followed by practice in phonetic recording. Analysis of phonetic patterns in language. Practical work in dictation of Chippewa, Dakota, Finnish, and other languages (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)

* Required of all candidates for a degree in library science.

§ This internship is required of all candidates who are specializing in hospital library work.

- Classics 106f,107w. Introduction to the Study of Language (3 cred. per quarter; jr., sr.; grad.; prereq. any two courses numbered above 50 in a foreign language) VIII MWF Swanson
 Classics 108s. Cultural Aspects of Language (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language) VIII MWF Swanson
 Anth.109s. General Linguistics. Special attention will be directed to non-Indo-European languages (3 cred.; jr., sr., grad.; no prereq.) I TThS Greenberg

CELTIC

- Ger.134-135-136. Introduction to Celtic Philology: Old Irish Phonology, Morphology, and Text Interpretation* (9 cred.; sr. with consent of instructor, grad.; prereq. at least two Senior College courses in early Indo-European languages, preferably Ling. 131-132 or German 113-114) (*Not offered*)

CLASSICS

- Latin 133s. Vulgar Latin (Development of Latin into Romance) (3 cred.; jr., sr., grad.; open to advanced students of Latin or a Romance language with the consent of the instructor) III MWF Swanson
 Latin 242. *Historical Latin Grammar* (3 cred.) (*Not offered*)

ENGLISH

- Eng.100f. Old English (4 cred.; jr., sr., grad.; prereq. 6 cred. in Eng. lit. above A-B-C) II TWThF Clark
 Eng.102w. Readings in Old English Prose and Verse (3 cred.; jr., sr., grad.; prereq. 100) II MWF Clark
 Eng.103s. Beowulf (3 cred.; jr., sr., grad.; prereq. 100) II MWF Clark
 Eng.165w. Introduction to Modern English (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) VII MWF Allen
 Eng.166s. Historical Backgrounds of Modern English (3 cred.; jr., sr., grad.; prereq. 165) VII MWF Allen
 Eng.171f-172w-173s. The Rise and Development of Standard English (6 cred.; sr. with consent of instructor, grad.; prereq. 100) VII-VIII T Allen
 Eng.174s. American English (3 cred.; jr., sr., grad.; prereq. 6 cred. in Eng. lit., including language, above A-B-C) VI MWF Allen

FRENCH

- French 171f-172w-173s.† History of French Language (3 cred.; jr., sr., grad.; prereq. one year of Latin or permission of instructor) Ar. Ar. Brackney
 French 201f-202w-203s. Old French Phonology and Morphology (6 cred.; grad.) Ar. Ar. Brackney
 French 204f-205w-206s. Reading in Old French Literature (6 cred.; grad.) Ar. Ar. Brackney

GERMAN

- Ger.110-111-112.† Middle High German.* Linguistic introduction and readings in Middle High German literature (9 cred.; sr., grad.; prereq. 70 and 11 cred. above 59) (*Not offered*)
 Ger.113f-114w. Gothic (6 cred.; sr. with completed major sequence, grad.) Ar. Ar. Downs
 Ger.125. *History of the German Language* (3 cred.; sr., grad.; prereq. 80 and 11 credits above 59) (*Not offered*)
 Ger.126. *Historical German Grammar* (3 cred.; sr., grad.; prereq. 110-111-112 or 113-114-115) (*Not offered*)
 Ger.176-177. *Problems and Research Trends in Germanic Philology* (6 cred.; sr., grad.; prereq. at least two medieval Germanic dialects) (*Not offered*)
 Ger.194s. Old Saxon (3 cred.; sr., grad.; prereq. German 113) Ar. Ar. Downs
 Ger.218-219-220. *Seminar: Germanic Languages and Literature* (9 cred.; grad.; prereq. at least 2 medieval Germanic dialects)
Texts in Germanic Dialects. Their linguistic, literary, and cultural background (*Not offered*)
Old High German. Linguistic interpretation of texts. (*Not offered*)

SANSKRIT

- Ling.128-129-130. Readings in Sanskrit.* Descriptive grammar; interpretation of Vedic and Classical Sanskrit texts (9 cred.; sr. with consent of instructor, grad.; prereq. at least two Senior College courses in early European languages) (*Not offered*)

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

Ling.131f-132w. Introduction to Sanskrit. Phonology and morphology from comparative viewpoint (6 cred.; sr. with consent of the instructor, grad.; prereq. at least two Senior College courses in early Indo-European languages, preferably Greek, Gothic, or Latin) Ar. Ar. Swanson

SCANDINAVIAN

Scand.185. *History of the Scandinavian Languages* (3 cred.; sr., grad.; prereq. Scand. 4-5-6 or 10-11-12 or consent of instructor) (*Not offered*)

Scand.195. *Introduction to Old Norse* (4 cred.; sr., grad.; prereq. German 113 or permission of the instructor) (*Not offered*)

SEMITIC

Ling.121-122-123. *Introduction to Arabic Grammar and Reading* (9 cred.; jr., sr., grad.; prereq. two courses above 50 in any foreign language) (*Not offered*)

Ling.124f-125w-126s. *Introduction to Biblical Hebrew* (9 cred.; jr., sr., grad.; no prereq. but this course cannot be used to satisfy language requirements) VII TThS Greenberg

SPANISH

Span.241f-242w-243s. *Old Spanish Philology* (6 cred.; grad.) IX-X F Grismer

MARRIAGE

See General Studies, page 61.

MATHEMATICS

Major advisers in the College of Science, Literature, and the Arts—Professors Brink, Hart, Cameron, and Associate Professor Olmsted.

Major sequence in the College of Science, Literature, and the Arts—Courses 50, 51, 62, and 105 or 107; and either 15 additional credits in Senior College courses, other than 70, or 6 additional credits in Senior College courses, other than 70, together with 10 credits of Physics 101-103-105 or 9 credits of Biostatistics (Public Health 110, 120, 130, 140).

(Prerequisites: Mathematics 6, 7, 30 or 15, 16, 30.)

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

All students majoring in Mathematics who have not studied a foreign language are urged to study French or German. Students who plan to pursue graduate study in Mathematics should refer to the section on "language requirements" in the *Bulletin of the Graduate School*.

Major adviser in the College of Education—Professor Hart.

Requirements for a teacher's certificate—Major recommendation; entrance credit in solid geometry or its equivalent; Courses 50, 51, and 8 additional credits in courses numbered above 51.

Minor recommendation: entrance credit in solid geometry or its equivalent. Course 50 and 3 additional credits in courses numbered above 50.

Mathematics 20 is strongly recommended as an elective, to be taken preferably in the freshman or sophomore year, in connection with either a major or minor recommendation.

Placement tests—In each of Courses 1, 6, 8, and 15 a placement test will be given at some time within the first two weeks of the quarter. Any student who fails in the test in Course 1 may be required to drop the course and to review his elementary mathematics before taking college mathematics. Any student who offers not more than one-half year of high school higher algebra as a substitute for Course 1 and who fails the placement test given in Course 6, 8, or 15 will be required to take Course 1 before taking more advanced mathematics. A student who has had a complete year of elementary algebra,

and a corresponding course in higher algebra for one-half year, should be able to pass the placement test in Course 6, 8, or 15.

Prerequisites for any course in mathematics may be waived if a petition for registration in the course is approved by the department chairman.

Junior College Courses

1f.* Higher Algebra. Essentially the equivalent of the second year of high school algebra; included are: factoring, fractions, linear equations and systems in one or more unknowns, graphing, exponents, radicals, quadratic equations (5 cred.; prereq. one year of elementary algebra§; open for credit to any student offering not more than one-half year of high school higher algebra for entrance) I MTWThF; III MTWThF; VI MTWThF; VIII MTWThF

In choosing one of the sections of the above course the student should be guided by the schedule of hours for its winter quarter continuation. The fall-winter sequences are: At I hour, 1f-8w, and 1f-15w; at III hour, 1f-6w; at VI hour, 1f-6w; at VIII hour 1f-8w.

1w.* Higher Algebra (See 1f) I MTWThF; V MTWThF; VI MTWThF

1s.* Higher Algebra (See 1f) I MTWThF; V MTWThF; VII MTWThF

6f.** Trigonometry. Includes: Definitions and properties of trigonometric and inverse trigonometric functions, logarithms, solution of triangles with applications, radian measure, functions of two angles, double angles, etc., identities, trigonometric equations (5 cred.; prereq. plane geometry and Course 1 or high school higher algebra§; open for credit even to students offering high school trigonometry for entrance) II MTWThF; VII MTWThF

6w.** Trigonometry (See 6f) III MTWThF; VI MTWThF

6s.** Trigonometry (See 6f) I MTWThF; V MTWThF; VI MTWThF

7f.¶** College Algebra. The standard course emphasizing logical aspects. Includes: Systems of quadratic equations, ratio, proportion, variation, progressions, permutations, combinations, probability, binomial theorem, mathematical induction, inequalities, complex numbers, theory of equations, determinants and applications (5 cred.; prereq. 6, or high school trigonometry if approved by the department chairman) II MTWThF; VI MTWThF

7w.¶** College Algebra (See 7f) II MTWThF; VII MTWThF

7s.¶** College Algebra (See 7f) III MTWThF; VI MTWThF

8f.¶ Commerce Algebra. College algebra including logarithms. College algebra for business students. Differs from 7 in its lower prerequisite and in including logarithms and other computational topics and in omitting determinants and certain other topics of logical interest (5 cred.; primarily for prebusiness students* but open also to others; prereq. 1, or high school higher algebra§) IV MTWThF; VII MTWThF

8w.¶ Commerce Algebra (See 8f) I MTWThF; VIII MTWThF

8s.*¶ Commerce Algebra (See 8f) V MTWThF; VI MTWThF

15f-16w.** Elementary Mathematical Analysis. A course for premedical and other students who desire a survey of college mathematics including trigonometry, algebra, and calculus with emphasis on fundamental ideas rather than on technical preparation for more advanced courses in mathematics (10 cred.; prereq. plane geometry and Course 1 or high school higher algebra§) III MTWThF; V MTWThF

15w-16s.** Elementary Mathematical Analysis (See 15f-16w) I MTWThF; V MTWThF

20w.* Mathematics of Investment. Simple interest and simple discount, compound interest, annuities with simple data, extinction of debts by periodic installments, bonds, depreciation, perpetuities, capitalization, general annuity formulas (5 cred.; prereq. 8, or 6 and 7, or 15 and 16) IV MTWThF; VII MTWThF

20s. Mathematics of Investment (See 20w) I MTWThF; VIII MTWThF

21. *Introduction to the Mathematics of Life Insurance*. Probability, mortality tables; actuarial notation and computation of net premiums for pure endowments, various types of contingent annuities and life insurance policies; policy reserves (3 cred.; prereq. 20) (*Not offered*)

30f. Analytic Geometry. A study of geometry by means of algebra. Topics included: Cartesian and polar coordinates, straight lines, circles, conic sections, loci of given equations, equations of given loci, solid analytic geometry (5 cred.; prereq. 6 and 7 or 6 and 8, or 15 and 16) I MTWThF; IV MTWThF

30w. Analytic Geometry (See 30f) II MTWThF; VI MTWThF

* Prebusiness students who elect mathematics to meet the requirement of 10 credits in mathematics or laboratory science, should take 1 and 8 if they have not had high school higher algebra, and 8 and 20 if they have had high school higher algebra.

§ Read the announcement about placement tests which precedes the heading, Junior College Courses.

¶ No student may receive credit for both Courses 7 and 8.

** No student may receive credit for both Course 6-7 and Course 15-16. If a student has taken Course 6 and wants more mathematics, he should take Course 7; if he has taken Course 15-16 and wants more mathematics, he should consult the chairman of the department, Room 119 Folwell Hall.

30s. Analytic Geometry (See 30f) II MTWThF; VII MTWThF
 G.E.70f,w,s. The Slide Rule (1 cred.; prereq. Math. 6 or 8, or 15 and 16) (For the schedule of hours and days see General Engineering 70 in the *Bulletin of the Institute of Technology*)

Senior College Courses

Courses 50, 51, 105 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Course 107 is open to junior college students who have met the prerequisites as printed below. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50f. Calculus I. Differential Calculus. Included: Derivatives and differentials of elementary functions; curve tracing; definitions of velocity, acceleration, curvature, etc.; maxima and minima; related rates; mean value theorems; indeterminate forms; infinite series; expansions of functions (5 cred.; jr., sr.; prereq. 30) III MTWThF; VI MTWThF
- 50w. Calculus I (See 50f) I MTWThF; IV MTWThF
- 50s. Calculus I (See 50f) II MTWThF; VI MTWThF
- 51w. Calculus II. Integral Calculus. Includes: Formal integration; geometrical and physical meaning of constants of integration; definite integrals; fundamental theorem of integral calculus; approximate integration; geometrical and physical applications; improper integrals; multiple integrals (5 cred.; jr., sr.; prereq. 50) III MTWThF; VI MTWThF
- 51s. Calculus II (See 51w) I MTWThF; IV MTWThF
- 60f. Synthetic Metric Geometry. A course in Euclidean geometry including ruler and compass constructions and theorems on the triangle and circle not studied in a high school course in plane geometry (3 cred.; jr., sr.; prereq. 30) VII MWF Carlson
- 62w. Introduction to the Theory of Equations. A study of complex numbers, solution of algebraic equations, analytic criteria for constructibility with rulers and compasses alone (3 cred.; jr., sr.; prereq. 50 or registration in 50 and consent of instructor) VII MWF Hatfield
70. *History of Elementary Mathematics* (3 cred.; jr., sr.; prereq. 30) (*Not offered*)
- 102f-103w. Advanced Analytical Geometry (6 cred.; jr., sr., grad.; prereq. 51) I MWF Carlson
- 105f. Intermediate Calculus. Topics in calculus not adequately treated in 50 and 51. Includes an increased emphasis on theoretical aspects, an introduction to ordinary differential equations, and to partial differentiation and multiple integration (5 cred.; jr., sr., grad.; prereq. 51) V MTWThF
- 105s. Intermediate Calculus (See 105f) III MTWThF; VI MTWThF
- 106f. Differential Equations. A problem course; methods for solving ordinary differential equations of various types with the necessary theory for developing these methods (3 cred.; jr., sr., grad.; prereq. 51) III TThS Loud
- 106w. (See 106f) V MWF Graves
- 107s. Advanced Calculus. A study in detail of some topics in calculus; partial differentiation; multiple integrals and change of variable; operations with series; basic ideas and applications of vectors. Line and surface integrals; Stokes' and Green's theorems; exact differentials; Beta and Gamma functions; Fourier series (5 cred.; jr., sr., grad.; prereq. 105, or 50 and 51 taken with A grades in this college, and either some acquaintance with solid analytic geometry or consent of instructor) V MTWThF Graves
- 109s. Theory of Numbers. Elementary properties of integers; prime and composite numbers; Euclid's algorithm; congruences; the theorems of Fermat and Wilson; primitive roots; indices; Galois imaginaries; finite algebras; Pythagorean and Heronian triangles; Diophantine equations (3 cred.; jr., sr., grad.; prereq. 51) I MTWThF Carlson
- 110f,w,s. A Tutorial Course in Advanced Mathematics. Qualified students whose needs are not met by courses offered may make special arrangements for obtaining, through reading and conferences, the content of other graduate courses regularly offered by the department (3 to 6 cred.; jr., sr., grad.; prereq. 51) Ar. Ar. Ar.
- 115w-116s. Differential Geometry (6 cred.; jr., sr., grad.; prereq. 136) III MWF Gibbens
118. *Vector Analysis*. The algebra of vectors; scalar product; vector product; triple products. Elements of the differential and integral calculus of vectors; space curves; gradient; divergence; curl; Stokes' and the divergence theorems (3 cred.; jr., sr., grad.; prereq. 51) (*Not offered*)
- 119-120. *Matrices and Groups*. 119w: Matrices as linear transformations. Rank of a matrix. Orthogonal and symmetric, unitary, and hermitian matrices. Equivalence relations between matrices, canonical forms; characteristic values and characteristic vectors; 120s: Elementary theory of finite groups and of infinite abelian groups with some application to permutation and crystallographic groups; representation by matrices, characters (6 cred.; jr., sr., grad.; prereq. 51) (*Not offered*)

- 121f-122w-123s. *Mathematical Theory of Statistics*. The method of least squares; simple, multiple, and partial correlation; normal, binomial, and Bernoulli distributions, and related parts of theory of probability; introduction to sampling theory, tests of significance (9 cred.; jr., sr., grad.; prereq. 51) IV TThS Bearman
125. *Theory of Geometrical Constructions*. Constructions with and without classical restrictions to rulers and compasses; famous geometrical problems of antiquity, with ancient and modern solutions; constructions by graded rulers, parallel rulers, squares, compasses alone, etc. (3 cred.; jr., sr., grad.; prereq. 30) (*Not offered*)
131. *Advanced Algebraic Theory* (3 cred.; jr., sr., grad.; prereq. 62 or 105) (*Not offered*)
- 136f. *Solid Analytic Geometry*. Algebraic treatment of planes and lines; direction cosines; systems of planes. Cylinders; surfaces of revolution. Quadric surfaces; tangent planes, ruled surfaces. Coordinate transformations, invariants. General equation of the second degree (3 cred.; jr., sr., grad.; prereq. 50 or registration in 50) III MWF Gibbens
- 137s. *Advanced Theory of Equations*. Determinants and linear systems, symmetric functions, resultants, indeterminate equations, reciprocal equations and the construction of regular polygons (3 cred.; jr., sr., grad.; prereq. 51, 62) VII MWF Hatfield
140. *Projective Geometry*. A study of the geometry of points, straight lines, and conics by methods, mostly synthetic and non-metric, based on central projection; theorems of Desargues, Pascal, and Brianchon, with applications (3 cred.; jr., sr., grad.; prereq. 51 or consent of instructor) (*Not offered*)
142. *Theory of Invariants* (3 cred.; jr., sr., grad.; prereq. 131 or 137) (*Not offered*)
- 144-145-146. *Topics in Analysis*. The general theory of orthonormal functions is developed and applied to Fourier, Legendre, Bessel, Hermite, and other series. Convergence and summability theorems are proved, and the Fourier integral is considered (9 cred.; jr., sr., grad.; prereq. 51) (*Not offered*)
149. *Introduction to Group Theory* (3 cred.; jr., sr., grad.; prereq. 51, 62) (*Not offered*)
- 170f-171w-172s. *Introduction to Modern Algebra*. Based on the text of Birkhoff and MacLane (9 cred.; jr., sr., grad.; prereq. 51 or consent of instructor) II MWF Kalisch
- 176w-177s. *Intermediate Differential Equations*. Topics in Differential Equations not contained in a first course but not requiring a broad background of analysis. Emphasis on linear equations of second order of interest in physics. Normal form, adjoint equations, series solutions, equations of Fuchsian type, hypergeometric, Bessel and Legendre equations (6 cred.; jr., sr., grad.; prereq. 106) III TThS Loud

For Graduate Students Only

- 206f-207w-208s. *Theory of Functions*. Theory of limits for sequences and functions of a continuous variable; infinite series; foundations of theory of functions of real variables, and of a single complex variable (9 cred.; grad.; prereq. 107 or the old course 107-108 or consent of instructor) II TThS Hart
209. *Advanced Modern Algebra*. Topics of modern algebra, such as the theory of rings, division algebras, valuations, algebraic number fields (3 cred.; grad.; prereq. 137 or consent of instructor) (*Not offered*)
- 212-213. *Point Set Topology*. Abstract spaces based on notions of neighborhoods, open sets, closure. Subspaces. Properties invariant under homeomorphisms; compactness; connectedness. Separation axioms. Metric spaces; Urysohn's metrization theorem. Transfinite numbers. Jordan curve theorem (6 cred.; grad.; prereq. 206) (*Not offered*)
- 221s. *Calculus of Variations* (3 cred.; grad.; prereq. 106 and 107 or the old course 107-108) IV TThS Cameron
- 245f. *Introduction to Lebesgue Integrals* (3 cred.; grad.; prereq. 208) II TThS Cameron
- 246w. *Introduction to Wiener Integrals* (3 cred.; grad.; prereq. 208 and consent of instructor) II TThS Cameron
- 247s. *Integration to Function Space* (3 cred.; grad.; prereq. 245 and consent of instructor) II TThS Cameron
- 252w-253s. *Linear Spaces* (6 cred.; grad.; prereq. 245) IV MWF Olmsted
- 271f-272w. *Theory of Linear Differential and Integral Equations* (6 cred.; grad.; prereq. 208) IV TThS Cameron

NOTE—Some of the courses listed in the *Graduate School Bulletin* are open to properly qualified juniors and seniors. For further information consult the chairman of the Department of Mathematics.

MILITARY SCIENCE AND TACTICS

The program in Military Science and Tactics, leading to a commission in the Army Officers' Reserve Corps, is available for students in the College of Science, Literature, and the Arts as well as for those in other colleges of the University. For information

concerning the requirements and the opportunities in this program, consult the *General Information Bulletin*.

The College of Science, Literature, and the Arts will accept credits from junior and senior courses in Military Science and Tactics to fulfill a minor toward the B.A. degree.

Junior College Courses

- 1f-2w. First Year Basic Course (1 cred. per qtr.; no prereq.) III MWF; VII MWF
 3s. First Year Basic Course (1 cred.; prereq. 1-2) III M and IX-X W; VII M and IX-X W
 4f-5w. Second Year Basic Course (1 cred. per qtr.; prereq. 1-2-3)* II MWF; VIII MWF
 6s. Second Year Basic Course (1 cred.; prereq. 4-5)* II W and IX-X W; VIII W and IX-X W

Senior College Courses

- 151f-152w. First Year Advanced Course (3 cred. per qtr.; prereq. 6)* I MTWThF; IV MTWThF
 153s. First Year Advanced Course (3 cred.; prereq. 151-152)* I MWF and IX-X W(Air) or IX-X Th(Ground); IV MWF and IX-X W(Air) or IX-X Th(Ground)
 154f-155w. Second Year Advanced Course (3 cred. per qtr.; prereq. 153)* II MTWThF; VI MTWThF
 156s. Second Year Advanced Course (3 cred.; prereq. 154-155)* II MWF and IX-X W(Air) or IX-X Th(Ground); VI MWF and IX-X W(Air) or IX-X Th(Ground)

MUSIC

To secure the degree of bachelor of arts with a major in music a student must fulfill the requirements of both the Junior and Senior Colleges as stated on pages 9-12 of this bulletin. He must secure 144 credits in courses other than practical music (piano, voice, etc., Courses 11 to 27). During the first two years, he should register for English A-B-C (Freshman English) or Composition 4-5-6 (Freshman Composition), or Communication 1-2-3, unless exempt from the requirements in English; foreign language (0 to 20 credits, as indicated on page 10; History 11-12-13 (Medieval History); Psychology 1-2 (General Psychology) and Psychology 4-5 (Introductory Laboratory Psychology); Public Health 3 (Personal Health, 2 credits); and the following courses in music:¶ 1T-2T-3T-4T-5T-6T (Music Theory); 7-8 (Counterpoint); 34-35-36 (History of Music). At the end of the sophomore year he must take a comprehensive examination to insure that he is prepared for Senior College work. In the following two years he must complete one or two academic minors (see page 12), and earn 30 credits in fields emphasizing one of the following branches of music: composition, history, normal piano (a training course in piano teaching). During the four years he must earn 30 credits in practical music.§ Special fees for courses in practical music are announced on page 93.

The Music Department is a liberal arts college member of the National Association of Schools of Music. The requirements for entrance and for graduation with this degree as set forth in this catalog are in accordance with the published regulations of the NASM.

Major advisers in the College of Science, Literature, and the Arts—Professors Oberg and Ferguson; Associate Professor Hull.

Major sequences in the College of Science, Literature, and the Arts—

A. History and Literature of Music: Courses 50-51-52, 53-54-55, 56-57-58, 60-61-62 or 63-64-65, 76.

B. Theory and Composition: Courses 56-57-58, 60-61-62 or 63-64-65, 73-74-75, 76, 77-78-79.

C. Normal Piano: Courses 56-57-58, 60-61-62 or 63-64-65, 70-71-72, 76, 80-81-82.

* Students who have completed six months of prior service in the armed forces (Army, Navy, Marine Corps, or Coast Guard) may receive credit for the First Year Elementary Course.

† Students who have completed one year of prior service in the armed forces (Army, Navy, Marine Corps, or Coast Guard) may receive credit for both years Elementary Course.

‡ All students majoring in organ or piano will also take Keyboard Harmony, 37-38-39.

§ Students may not take special examinations in practical music (Music 11-27) for work done elsewhere while they are in residence at the University.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Courses recommended for students who have a minor rather than a major interest in music—

- A. Practical Music: Courses 1T-2T-3T, 34-35-36, and twelve credits in practical music (Courses 11 to 27) in the Junior College plus ten credits in practical music (Courses 11 to 27) in the Senior College.
- B. History and Criticism: Courses 1T-2T-3T, 34-35-36, 76, and 50-51-52 or 53-54-55 or 56-57-58.
- C. Ensemble: Two years' work (12 credits) or equivalent in practical music (Courses 11 to 27), Courses 34-35-36, 76, 60-61-62 or 63-64-65, 40-41-42 or 43-44-45.

For a special curriculum in Music Education see the *College of Education Bulletin*. For courses in Music Education which are open to students in the College of Science, Literature, and the Arts, see page 96.

Entrance requirements, according to the instrument selected—

Piano: Any major or minor scale in octaves, thirds, sixths, or tenths, in sixteenth notes at M.M., quarter note = 108; Bach Invention or dance from one of the suites; a sonata by Haydn or Mozart; a modern composition of equal difficulty with the sonata.

Voice: Sing on pitch with correct phrasing and musical intelligence standard songs in good English (the simpler classics recommended). Demonstrate ability to read a simple song at sight and have a knowledge of the rudiments of music. Have a promising voice. Some knowledge of piano is urgently recommended.

Violin: Major and minor scales, arpeggios; the simpler Kreutzer Etudes; a sonata by Handel, Haydn, Mozart, or Schubert; a more modern work displaying special technique peculiar to the violin.

Organ: Same as for piano.

To register in the music course a student must meet the entrance requirements in practical music before a committee of the faculty of the Music Department. This applies also to academic students who wish to elect courses in practical music for credit.

Course fees—

Music 11 to 27 inclusive, Mu.Ed. 225:

- | | |
|---|---------|
| 1. One individual lesson per week, 2 credits | \$30.00 |
| 2. Two individual lessons per week, 4 credits | 60.00 |
| 3. Class lessons in Courses 11C, 12C, 2 credits | 15.00 |

Music A-B-C and D-E-F:

- | | |
|--|-------|
| 1. One individual lesson per week, no credit | 30.00 |
|--|-------|

Practice fees for rent of pianos, organs and rooms

Piano and practice room:

1 hour per week, per quarter	1.00
2 hours per week, per quarter	2.00
Each additional hour per week, per quarter50
Small organ and practice room, per hour20
Large organ and practice room, per hour40
Practice room for other instruments, 10 hours per week, per quarter	2.00

Practical music—Students may enter courses in practical music (private lessons) any quarter.

Courses numbered from 11 to 27,* inclusive, carry either 2 or 4 credits a quarter. The first twelve credits in any one of these courses count as Junior College credits; additional credits count as Senior College credits.

No student may count for graduation more than 36 credits in practical music.

* Students may not take special examinations in practical music (Music 11-27) for work done elsewhere while they are in residence at the University.

Junior College Courses

- 1Tf-2Tw-3Ts. Music Theory. An intensive course in the development of musicianship through both auditory and visual perception. The student will participate in extensive ear training, sight singing, and keyboard drills (9 cred.; primarily for music majors and minors. Students must make arrangements for a placement test in the office of the Department of Music) II MTWThF Feese; VII MTWThF Feese
- 1Tw-2Ts. Music Theory (First two qtrs. of 1T-2T-3T. See Music 1Tf-2Tw-3Ts) V MTWThF
- 4Tf-5Tw-6Ts. Music Theory. A continuation of Theory 1T-2T-3T with greater emphasis on harmonic analysis, part-writing and clef reading (12 cred.; prereq. 3T) I MTWThF Malcolm; III MTWThF Malcolm; VI MTWThF Malcolm
- 1f,w,s. Fundamentals of Music. Knowledge of the piano keyboard; major and minor scales; triads; elementary ear training; rhythmic dictation (2 cred.; for non-music majors; no prereq.) I MTWTh Berryman
- 7w-8s. Counterpoint (6 cred.; soph., jr., sr.; prereq. 1T-2T-3T) III MWF Ferguson
- 31f-32w-33s.¶ Music Appreciation. Cultivation of better understanding of music heard today. Emphasis on the music itself rather than on discussions of music. Symphonic works, operas, and chamber music. The course is designed for students with a general interest in music rather than for those majoring in music (6 cred.; no prereq.) III MWF Oberg, Ivory
- 34f-35w-36s.¶ History of Music (6 cred.; soph., jr., sr.; no prereq.) II MWF Ferguson
- 37f-38w-39s. Keyboard Harmony. Practical ear training as applied to the piano. Chorales are transposed into all keys in four parts and expanded chords by melodic and harmonic analysis. Modulation is also studied (3 cred.; prereq. Mu. 3T) II TTh Jennings
- 40f-41w-42s.¶¶ Orchestra. A study of orchestral literature through actual performance. Orchestral players from all colleges are invited to participate (3 cred.; prereq. consent of director) 7 p.m. T Oberg; strings IX M; woodwinds and brass IX W; full orchestra IX F; VI TTh ar.
- 43f-44w-45s.¶¶ University Chorus. The objectives of the University Chorus will be to prepare for performance with the Minneapolis Symphony Orchestra and the University Symphony Orchestra at least two of the major symphonic-choral works. Sequence of quarters is expected and entrance is by audition with the director (3 cred.; prereq. consent of director) IV MTWF Aliferis; VIII MTWF Aliferis; 7 p.m. W Ar.
- 43Uf-44Uw-45Us. University Farm Music Ensembles—Vocal and Instrumental. For students in Agriculture, Forestry, and Home Economics only. With special reference to music used in extension, farm, home, school, and recreational activities (3 cred.; no prereq.) X TTh Rymer
- 46f-47w-48s.¶¶ Concert Band. Rehearsals and appearances of the University Concert Bands covering standard band literature. Rehearsals run each week from 4 p.m. to 5:20 p.m. on days assigned. One sectional meeting each week is required of all members, in addition to the full rehearsals. Band makes an average from 3 to 12 appearances each quarter (3 cred.; prereq. consent of director) IX MTTh Prescott; IX MWF Prescott

Courses in Practical Music

For a statement about credits and prerequisites for courses in practical music other than Courses 40-41-42 and 43-44-45, see statement under Practical Music, page 93.

The first twelve credits in any one of Courses 11 to 27 count as Junior College credits: additional credits count as Senior College credits.

- Af-Bw-Cs.‡ Piano (No cred.; for students without entrance requirements for piano; no prereq.) Private lesson Ar. Ar. Ar.
- Df-Ew-Fs.‡ Voice (No cred.; for students without entrance requirements in voice; no prereq.) Private lesson Ar. Ar. Ar.
- 11f,w,s.‡ Piano—Individual Lessons (2-4 cred. per qtr.) VIII Th and lesson hrs ar.
- 11Cf,w,s.‡ Piano—Class Lessons (2-4 cred. per qtr.)* VIII Th and II TTh or III TTh or VI TTh
- 12f,w,s.‡ Voice—Individual Lessons (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
- 12Cf,w,s.‡ Voice—Class Lessons (2-4 cred. per qtr.)* VIII Th and III TTh or VI TTh or VII MW
- 13f,w,s.‡ Violin (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.

* Science, Literature, and the Arts major students must take individual rather than class lessons in their major instrument. Music Education majors will take individual lessons in their major but may take class lessons in their minor instrument. No student may take class lessons for more than 6 credits. Classes in piano will be composed of 4 students; classes in voice may be composed of 6 students.

‡ See statement of fees, page 93.

§ May be taken only with consent of director.

¶ Students may enter any quarter.

** Students may receive credit for two years of chorus.

†† Students majoring in music may earn twelve credits in orchestra.

‡‡ Students may receive credit for two years of concert band.

- 14f,w,s.‡ Viola (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 15f,w,s.‡ Cello (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 16f,w,s.‡ Double Bass (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 17f,w,s.‡ Flute (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 18f,w,s.‡ Oboe (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 19f,w,s.‡ Clarinet or Saxophone (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 20f,w,s.‡ Bassoon (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 21f,w,s.‡ Trumpet (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 22f,w,s.‡ French Horn (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 23f,w,s.‡ Trombone (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 24f,w,s.‡ Tuba (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 25f,w,s.‡ Percussion (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 26f,w,s.‡ Harp (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.
 27f,w,s.‡ Organ (2-4 cred. per qtr.) VIII Th and lesson hrs. ar.

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50f-51w-52s. Music of the Eighteenth Century. Late Basso-Continuo period and the Classical Symphony style. Study of scores, classroom singing, and performance. Assigned readings in various texts (6 cred.; jr., sr.; prereq. 35) III TTh Ivory
 53f-54w-55s. Romantic Movement. A survey of the musical literature of the nineteenth and twentieth centuries with special reference to the influences of the Romantic philosophy. Nationalism and the twentieth-century idioms (6 cred.; jr., sr.; prereq. 35) VII WF Kendall
 56f-57w-58s. Bach and Beethoven (9 cred.; sr.; prereq. 34-35-36) VI-VII TTh Ferguson
 60f-61w-62s. Instrumental Ensemble. A course in the playing of chamber music by great composers, which includes sonatas, trios, quartets, quintets, etc. (6 cred.; jr., sr.) VI MWF Stephens
 63f-64w-65s. Vocal Ensemble. A course designed to train students in small group (trios, quartets, etc.) singing and to acquaint them with repertoire in this field from madrigals to opera and oratorio (6 cred.; jr., sr.; prereq. 6 cred. in Course 12 or 12C) VIII WF Hull
 66f-67w-68s. Choral Chamber Group. A study through performance of choral literature for small vocal groups (3 cred.; prereq. consent of instructor) Ar. Ar. Ar.
 70f-71w-72s. Normal Piano. A course covering piano literature, Grades I to V, for the development of students in fundamentals of rhythm, ear training, technic, sight reading, and interpretation at pre-school, adult beginner, and advanced levels (6 cred.; jr., sr.; prereq. 2 years of piano) I MWF Kendall
 73f-74w-75s. Advanced Harmony. A course designed to develop the creative approach and application of harmonic materials to the writing of musical phrases and periodic forms (6 cred.; jr., sr.; prereq. 6T) III MW Aliferis
 76f. Form and Analysis. Key, harmonic, and form analyses of important contrapuntal and homophonic music, especially that of Bach and Beethoven (3 cred.; jr., sr.; prereq. 6T) II MWF Stephens
 77f-78w-79s. Composition. Creative work in musical forms (6 cred.; jr., sr.; prereq. 6T, 7-8) Ar. Ar. Ferguson
 80f-81w-82s. Advanced Normal Piano. A laboratory course based on 70-71-72. Supervised presentation of literature to individuals and groups (6 cred.; sr.; prereq. 70-71-72) VIII MWF Kendall
 83f-84w-85s. Advanced Composition (6 cred.; sr.; prereq. 77-78-79) Ar. Ar. Ferguson
 86f-87w-88s. Orchestration. A study of the instruments of the orchestra together with a practical study of the art of symphonic scoring (6 cred.; jr., sr.; prereq. 6T) III TF Ar.
 90f-91w-92s. Advanced Instrumental Ensemble. The more difficult chamber music is studied as literature in performance looking toward public presentation (6 cred.; sr.; prereq. 60-61-62) VI MWF Stephens
 93f-94w-95s. Improvisation. This course which attempts to encourage the student toward greater flexibility in service-playing offers a continuation of the application of harmonic and contrapuntal technique to extemporization at the organ (3 cred.; jr., sr.; prereq. 6T and 12 cred. in organ. Mu. 27 or consent of instructor) II TTh Berryman

For Graduate Students Only

- 200f-201w-202s. Basis of Musical Expression (9 cred.; grad.; prereq. 56-57-58) VIII-IX MF and conf. hr. ar. Ferguson
 205f-206w-207s. Composition in Larger Forms (9 cred.; grad.; prereq. 83-84-85) Ar. Ar. Ferguson
 209f-210w-211s. Advanced Topics in Musical Analysis (9 cred.; grad.; prereq. 76) II MWF Oberg
 212f,w,s. Special Problems in Music (3 to 9 cred.; grad.; prereq. 202 or 211) Ar. Ar. Oberg, Ferguson

‡ See statement of fees, page 93.

MUSIC EDUCATION

The following courses in Music Education are regularly open to students in the College of Science, Literature, and the Arts:

- Mu.Ed.63w.‡ Band Conducting. A course designed to give practical experience in conducting recommended band literature of all grades (2 cred.; jr., sr.; prereq. Mu.Ed. 4-5-6 or equivalent) VI TTh Prescott
- Mu.Ed.65f,w,s.‡ Instrumentation. This course involves a theoretical study of orchestral and band instruments, in combination. The physics of tone color is explained. Revision of materials suitable for school use, and discussion of capacity and capability of school performance on the various instruments are undertaken (3 cred.; jr.; prereq. Mu. 6T) II TThS Ar.
- Mu.Ed.68s. Conducting of Instrumental Music and Survey of Materials. Training of directors of orchestra and band ensembles, and a critical survey of available music materials adaptable to school music purposes. Laboratory practice in the technique of the baton in interpreting worthy instrumental compositions, developing appreciation of better literature. Psychological basis of conducting and consideration of the acoustical properties of auditoriums. Efficient management of rehearsals (4 cred.; sr.; prereq. Mu.Ed. 65) I-II MWF Ar.

NATURAL SCIENCE

See General Studies, page 63.

NAVAL SCIENCE

The program in Naval Science is available for students in the College of Science, Literature, and the Arts as well as for those in other colleges of the University. For information concerning the requirements and the opportunities in this program, consult the *General Information Bulletin*.

The College of Science, Literature, and the Arts will accept credits from junior and senior courses in Naval Science to fulfill a minor toward the B.A. degree.

Junior College Courses

- 11f. Naval Orientation and Seamanship 111 (3 cred.) Lect. III MWF; IV MWF; VII MWF; lab. VIII-IX T
- 12w. Seamanship and Communication 112 (3 cred.) Lect. III MWF; IV MWF; VII MWF; lab. VIII-IX T
- 13s. Ship Control and Naval Justice 113 (3 cred.) Lect. III MWF; IV MWF; VII MWF; lab. VIII-IX T
- 21f. Ordnance 211 (3 cred.) Lect. II MWF; VI MWF; VII MWF; lab. VIII-IX T
- 22w. Fire Control 212 (3 cred.) Lect. II MWF; VI MWF; VII MWF; lab. VIII-IX T
- 23s. Applied Naval Electronics 213 (3 cred.) Lect. II MWF; VI MWF; VII MWF; lab. VIII-IX T

Senior College Courses

- 51f. Piloting 311 (3 cred.) Lect. III MWF; VI MWF; lab. VIII-IX T
- 52w. Navigation 312 (3 cred.) Lect. III MWF; VI MWF; lab. VIII-IX T
- 53s. Tactics 313 (3 cred.) Lect. III MWF; VI MWF; lab. VIII-IX T
- 54w. Principles of War 312M (3 cred.) IV MWF; VII MWF Troy
- 55s. Individual Weapons 313M (3 cred.) IV MWF; VII MWF Troy
- 61f-62w. Naval Engineering 411-412 (3 cred. per qtr.) Lect. II MWF; IV MWF; lab. VIII-IX T
- 63s. Ship Construction and Stability 413 (3 cred.) II MWF; IV MWF; lab. VIII-IX T
- 64f. Marine Tactics 411M (3 cred.) IV MWF; VII MWF; lab. VIII-IX T Troy
- 65w. Combat Technique 412M (3 cred.) IV MWF; VII MWF; lab. VIII-IX T Troy
- 66s. Amphibious Operations 413M (3 cred.) IV MWF; VII MWF; VIII-IX T Troy
- 67f-68w-69s. Navy Supply 411S-412S-413S (4 cred. per qtr.) Ar. MTWF; lab. VIII-IX T

NORWEGIAN

See Scandinavian, page 121.

‡ A fee of \$1.50 per credit is charged for this course.

PERSONAL ORIENTATION

See General Studies, page 64.

PHILOSOPHY

Major advisers in the College of Science, Literature, and the Arts—Professors Conger, Castell, and Associate Professor Sellars.

Major sequence in the College of Science, Literature, and the Arts—Courses 50-51-52 and others, to make a total of at least 27 credits in Senior College courses including at least six credits in courses numbered above 100.

(Prerequisite for major sequence, Course 1; Course 1A will not be accepted for this requirement; 20 credits of one language, either Greek, Latin, German, or French, with allowance of 5 credits for each year of high school preparatory work.)

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College. In particular, Humanities 131-132-133 (Humanities Proseminar) may be offered to make a major in philosophy if the major adviser approves.

Most of the courses in philosophy are designed to be in one way or another "integrative"—to take data from other courses and from various fields of interest and ask how they fit together and what their significance is for man and his work. For a list of recommended related courses in other departments consult philosophy instructors or see the bulletin board outside 323 Folwell Hall.

Courses 1, 2, 3, 1A, 2A, and 3A are introductory. They may be taken singly or in any order, but no student may receive credit for both 1 and 1A, or 2 and 2A, or 3 and 3A. The sections of these courses are scheduled so that one may be taken at almost any hour and so that, if another of the courses is elected, it may be taken at the same hour in the following quarter.

Students who, because of sequences or other interests, desire courses marked "Ar." are invited to consult the instructors with regard to possible organization of seminars to cover such work.

Students intending to enter theological seminaries or other institutions for training in religious work should note the special interdepartmental (or liberal arts) curriculum which is indicated in this bulletin, page 134. Philosophy advisers may be consulted with regard to this curriculum.

For Mr. Castell's course, Humanities Proseminar, see page 63; and for other courses in Humanities, see pages 61-63.

Junior College Courses

- 2Af-1Aw-3As. Selected Problems of Logic, Selected Problems of Philosophy, Selected Problems of Ethics. A special sequence of courses in philosophy especially for prelegal freshmen, but open to other students. Only by special permission of the instructor will prelegal students be admitted to 1Aw-3As without 2Af, or to 3As without 1Aw (3 cred. per qtr.; open to prelegal fr., some other fr.,* and to soph., jr., sr.; no prereq.) VI MWF Sellars, Wiggins
- 1f. Problems of Philosophy. An introductory course dealing with man's most important attempts to understand the world and himself. Brief survey of great philosophies; methods of obtaining knowledge; chief data of the sciences; doctrines of evolution, especially in their bearing on ethics and religion (5 cred.; open to some fr.* and to soph., jr., sr.; no prereq.) III MTWThF Swanson; V MTWThF Brodbeck; VII MTWThF Conger
- 1w. Problems of Philosophy (See 1f) II MTWThF Hoppers; VIII MTWThF Wiggins
- 1s. Problems of Philosophy (See 1f) Lect. IV MWF Sellars; quiz sections as follows: IV TTh; V TTh; VI MTWThF Brodbeck

* Courses 1, 2, 3 and 1A, 2A, 3A are open in any quarter to a limited number of freshmen with the approval of their advisers.

- 2f. Logic. A study of the difference between logical and fallacious reasoning; types of fallacies; rules of a good definition; syllogisms; proof; hypothesis; generalization; probability (5 cred.; open to some fr.* and to soph., jr., sr.; no prereq.) Lect. IV MWF Castell, quiz sections as follows: IV TTh, V TTh; VIII MTWThF Brodbeck
- 2w. Logic (See 2f) III MTWThF Swanson; lect. IV MWF Castell; quiz sections as follows: IV TTh; V TTh; VI MTWThF Brodbeck
- 2s. Logic (See 2f) II MTWThF Hospers; V MTWThF Brodbeck; VII MTWThF Holmer
- 3f. Ethics. Problems of life treated in terms of (1) contemporary social, political, and economic forces, and (2) the character of the individual; psychological and philosophical foundations of morality; the reconstruction of morality (5 cred.; open to some fr.* and to soph., jr., sr.; no prereq.) II MTWThF Hospers; VI MTWThF Wiggins
- 3w. Ethics (See 3f) V MTWThF Brodbeck; VII MTWThF Wiggins
- 3s. Ethics (See 3f) III MTWThF Swanson; VIII MTWThF Wiggins
10. *Science and Religion*. An inquiry into the nature of science and religion as currently interpreted, with an attempt to find grounds of conflict and/or reconciliation (3 cred.; soph., jr., sr.; no prereq.) (*Not offered*)
20. *Social Philosophy*. A study of conflicting social philosophies of today; liberalism vs. authoritarianism; evaluation of various social, political, and economic institutions in terms of ethical ideals; other problems of social morality; social reconstruction; social utopias (3 cred.; soph., jr., sr.; no prereq.) (*Not offered*)

Senior College Courses

Course 70 is open to sophomores who have an average grade of at least C in all their work. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50f-51w-52s. § General History of Philosophy. Materials once covered in the course in Readings in Philosophical Classics will be incorporated in this five-hour course. The attention of advanced students is called to courses 230-231-232, listed below (15 cred.; jr., sr.; no prereq.) III MTWThF Shaw
- 59w. Esthetics. The role of art in society; esthetic values and standards; analyses of esthetic expression, representation, form, matter, medium, etc.; style and other philosophical problems in the history of art (3 cred.; jr., sr.; no prereq.) VI MWF Hospers
- 70f. ¶ Philosophies of Social Reform I: from the French Revolution to 1848. Social criticism in the period of rising industrialism. A consideration of the philosophical bases of liberalism, utopian socialism, and democracy (3 cred.; jr., sr.; no prereq.) IV MWF Wiggins
- 71s. Design for America (Formerly Philosophy 21s) A discussion of the aims of American life with the future as a frame of reference. Potentialities in economics, politics, art, science, and education in their interrelations. Student and faculty participation is stressed (5 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.) IV MTWThF Wiggins
73. *Philosophy of Law*. A survey of the classical philosophies of law from Plato through the nineteenth century. The nature and method of law, justice, and the judicial process in the light of contemporary thought (3 cred.; soph., jr., sr.; prereq. 6 cred.) (*Not offered*)
- 81f-82w-83s. Science and Civilization (Formerly 80-81-82) The course attempts to provide an adequate understanding of the evolution of the sciences and of the scientific point of view within the frame of the history of civilization; the meaning of the fundamental problems, methods, concepts, and assumptions of modern science; and the human and social implications of science in the contemporary world (9 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.) III MWF Brodbeck
- 101f-102w-103s. Principles of Philosophy. Topics for the fall quarter include knowledge, meaning, and truth; for the winter quarter, reality, mind, and nature; for the spring quarter, human values and action (2 cred. per qtr.; open only to seniors and graduates who have not had Course 1 or Course 2; no prereq.) III TTh Feigl
- 106f-107w. Plato. A study of the philosophy of Plato based on an analysis of the major dialogues (6 cred.; jr., sr., grad.; prereq. 50 or consent of instructor) VIII MWF Sellars
108. *Aristotle*. A study of the philosophy of Aristotle based on the analysis of selected passages from his major works. Particular attention will be given to his relationship to Plato. A survey will be made of the Aristotelian tradition in Western philosophy (3 cred., jr., sr., grad.; one course from 50-51-52 or consent of instructor) (*Not offered. Offered in 1949-50*)

* Courses 1, 2, 3 and 1A, 2A, 3A are open in any quarter to a limited number of freshmen with the approval of their advisers.

§ Students may enter any quarter.

¶ No student may receive credit for both Philosophy 70 and Political Science 162.

- 110f. Rationalism. The philosophies of Descartes, Spinoza, and Leibniz (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor) IV MWF Sellars
- 111w. Empiricism. Philosophies of Locke, Berkeley, Hume (3 cred.; jr., sr., grad.; prereq. 52 or consent of instructor) VI MWF Shaw
- 111A. *Eighteenth Century Philosophy*. A study of the main philosophic trends of the eighteenth century. Empiricism and idealism in England (Locke, Berkeley, and Hume); rationalism and materialism in France (Voltaire, Diderot, d'Alembert, Holbach); criticism in Germany (Kant). The course is designed not only for majors in philosophy but also in history, English literature, French, and German (3 cred.; jr., sr.; no prereq.) (*Not offered*)
- 112s. Kant. A study of the philosophy of Kant based on an analysis of selected passages from his major works (3 cred.; jr., sr., grad.; prereq. 52 or consent of instructor) VI MWF Sellars
- 113w. Kierkegaard and Scandinavian Philosophy. A study of the philosophical tradition in the Scandinavian countries, with special reference to Kierkegaard and his significance (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor) VII MWF Holmer
- 114f. Introduction to American Philosophy: Puritanism to Pragmatism. A study of Puritanism, the Revolutionary period, transcendentalism, evolutionism, idealism, and pragmatism (3 cred.; jr., sr., grad.; especially for students of American history and literature) VI MWF Castell
- 114Aw. American Philosophy since William James. Continuation of 114 (3 cred.; jr., sr., grad.; prereq. 114 or consent of instructor) VIII MWF Castell
- 115f. Contemporary Philosophy. A study of current systematic and critical philosophies especially idealism, naturalism, realism, pragmatism, positivism, and existentialism, as represented by their principal exponents (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor) III MWF Hospers
- 116s. Philosophy of John Dewey. A survey of the ethical, social, educational, and logical contributions made to modern thought by this distinctively American thinker (3 cred.; jr., sr., grad.; prereq. 52 or consent of instructor) III MWF Hospers
- 117f-118w-119s. Readings in Recent Philosophy. An intensive study of works by Russell, Whitehead, and Collingwood; works by other authors (3 cred. per qtr.; jr., sr., grad.; prereq. 52 or consent of instructor) Ar. Ar. Holmer
- 123w. Comparative Philosophy. A survey of the principal Oriental philosophies, Hindu, Buddhist, Taoist, and Confucian, with special attention to comparisons and contrasts with Western systems (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor) VII MWF Conger
- 135s. Philosophy in Modern Literature. A survey of basic philosophical ideas in modern civilization as they are expressed in major works of literature. (Not open to students who have had General Studies, Hum. 3 or Hum. 53) (3 cred.; jr., sr., grad.; no prereq.) VI MWF Castell
- 143f. Theory of Knowledge. An analysis of the logical structure and experiential roots of knowledge. The topics include meaning, validity, truth, reason and experience, induction, criteria of objectivity and reality (3 cred.; jr., sr., grad.; prereq. 2 or consent of instructor) III MWF Feigl
- 147s. Elements of Symbolic Logic and Semantics. A systematic introduction to modern mathematical logic and the logical analysis of language. The topics include the dimensions of language; calculus of propositions, classes, and relations; applications to foundations of mathematics (3 cred.; jr., sr., grad.; prereq. Course 2 or consent of instructor) III MWF Feigl
- 153w. Philosophy of Science. An attempt to provide a clear understanding of the meaning, methods, and implications of modern science through the examination of basic concepts, presuppositions, and procedures. The topics include description, explanation, prediction, experimentation; space, time, number, matter, energy; causality, probability, statistics; organic life, evolution, mind (3 cred.; jr., sr., grad.; prereq. Course 2 or consent of instructor) III MWF Feigl
- 155s. Metaphysics. A study of some recent attempts to discover general principles characteristic of the universe, with special reference to the sciences (5 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor) VII MTWThF Conger
- 164s. Ethical Theory. Distinguishing characteristics of a moral judgment; applications of moral judgments to motives, acts, consequences, and persons; moral freedom and responsibility; moral relativity, scepticism, and unity; ethical monism and pluralism; paternalism and individualism in ends and means; theory of knowledge as basis of morality; examination of representative systems (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor) VIII MWF Sellars
- 165w. Political and Social Ethics. A discussion of the ethical principles, theoretical and practical, at the basis of the political order (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor) IV MWF Wiggins
- 170f. Philosophy of History. A study of the idealistic, theological, and economic interpretations of history, with particular reference to the concepts of progress, continuity, pluralism, etc., and to the philosophical aspects of historical methods (3 cred.; jr., sr., grad.; prereq. 6 cred. in phil. or 10 cred. in hist.) VII MWF Holmer

- 180f. History of Religions. A survey of some phases of primitive religions and of the history, literature, and chief teachings of the more highly developed faiths (3 cred.; jr., sr., grad.; prereq. 6 cred.) VI MWF Conger
- 181w. Psychology of Religion. Current interpretations of religious experience and behavior, according to various psychologies (3 cred.; jr., sr., grad.; prereq. 6 cred.) VI MWF Conger
- 182s. Philosophy of Religion. Discussion of the ground and sanctions of religion, according to various philosophies (3 cred.; jr., sr., grad.; prereq. 6 cred.) VI MWF Conger
- 191f-192w-193s. Seminar in Philosophy. Topics to be arranged according to students' interests, e.g., see courses marked Ar. (9 cred.; sr., grad.; prereq. 9 credits or consent of instructor) Ar. Ar. Conger, Feigl, Castell, Sellars, and others

Courses Primarily for Graduate Students

- 191f-192w-193s. See above.
- 220f-221w-222s. Seminar in Philosophical Analysis. A systematic study at the advanced level of the basic concepts and problems of epistemology. (3 cred. per qtr.; prereq. 143 or consent of instructor) Ar. Ar. Sellars
- 230f-231w-232s. History of Philosophy (Advanced). A survey of the development of the concepts and traditions of Western philosophy based on a reading of selected passages from the writings which shaped this development. Fall: Ancient and Medieval; winter: Renaissance, Modern Philosophy before Kant; spring: Kant and Nineteenth-Century Philosophy (3 cred. per qtr.; primarily for graduate students from other departments who have had no previous courses in philosophy. Philosophy majors who have taken 50-51-52, may enroll with consent of instructor) Ar. Ar. Hospers
- 241-242-243. *Seminar: Philosophy of the Physical Sciences* (3 cred. per qtr.; prereq. consent of instructor) (*Not offered. Offered in alternate years*)
- 244f-245w-246s. Seminar: Philosophy of Biology and Psychology (3 cred. per qtr.; prereq. consent of instructor) Ar. Ar. Feigl, Meehl
- 247-248-249. *Seminar: Logic of the Exact Sciences* (3 cred. per qtr.; prereq. consent of instructor) (*Not offered. Offered in alternate years*)
- 250f-251w-252s. Seminar: Philosophy of the Social Sciences (3 cred. per qtr.; prereq. consent of instructor) Ar. Ar. Feigl.

PHYSICAL EDUCATION FOR MEN

A towel and locker fee of \$1.25 per quarter is charged all students using physical education facilities for activity. Uniforms for class work or recreational activity are \$1 per quarter.

The following courses in Physical Education for Men are open, with credit, to students in the College of Science, Literature, and the Arts:

- 1Af-Bw-Cs. Sports Education. Sports Education 1A-B-C is an orientation course in a variety of recreational sports in which the student has had little or no experience. The objective is to provide instruction and competition in those sports in which men may participate now and in future years as a means of obtaining recreation, regular exercise, and social intercourse (1 cred. per qtr.; no prereq.)
- 1Af. Touchball, Volleyball, Boxing, Badminton. II MWF; III MWF; IV MWF; VI MWF
Ostrander and staff
Beginning Swimming (for nonswimmers only) II MWF Boyce; VII MWF Thorpe; III TThS Boyce
Adapted Activities (by permission of instructor only) III MWF Osell; IV MWF Osell; VIII MWF Osell
- 1Bw. Wrestling, Handball, Squash, Basketball. II MWF; III MWF; IV MWF; VI MWF
Ostrander and staff
Beginning Swimming. II MWF Boyce; VII MWF Thorpe; III TThS Boyce
Adapted Activities (by permission of instructor only) III MWF Osell; IV MWF Osell; VIII MWF Osell
- 1Cs. Swimming, Track, Softball, Tennis. II MWF; III MWF; IV MWF; VI MWF
Ostrander and staff
Beginning Swimming. II TThS Boyce; III TThS Boyce
Adapted Activities (by permission of instructor only) III MWF Osell; IV MWF Osell; VIII MWF Osell

2Af-Bw-Cs. Sports Education. The program in Sports Education 2A-B-C offers an opportunity to develop proficiency in an elected recreational sport in which the student has had previous experience (1 cred. per qtr.; no prereq.)

2Af. Bowling.* II TThS Young

Intermediate Swimming (Prereq. ability to swim 50 yards) II TThS Boyce; VI MWF Thorpe

Advanced Swimming (Prereq. ability to swim 100 yards) III MWF Boyce

Wrestling. VIII MWF Bartelma

Boxing. VII MWF Chisholm

Weight Lifting. VIII MWF Ar.

Gymnastics. VIII MWF Ostrander

2Bw. Bowling.* II TThS Young

Intermediate Swimming (Prereq. ability to swim 50 yards) II TThS Boyce

Advanced Swimming (Prereq. ability to swim 100 yards) III MWF Boyce

Badminton. III TThS Brain

Wrestling. VIII MWF Bartelma

Weight Lifting. VIII MWF Ar.

Basketball. VII MWF Mohr

2Cs. Advanced Swimming. VII MWF Thorpe

Life Saving (Prereq. ability to swim 440 yards) III MWF Thorpe

Tennis. VII MWF Brain

Golf.§ III-IV MTWThFS (students may select any three hours) Bolstad

Handball and Squash. IV MWF Ar.

PHYSICAL EDUCATION FOR WOMEN

The following courses in Physical Education for Women are open, without credit, to students in the College of Science, Literature, and the Arts. Students planning to enter the College of Education later will receive credit for these courses after they have transferred to that college.

A physical education fee of \$1.75 per quarter is charged for all activities courses. Maximum fee per student, \$3.50 per quarter.

Students must report to the Norris Gymnasium for Women on either of the first two days of the quarter in order to be placed in the proper section, day, and hour of the activity course. This registration is an addition to the regular registration.

If and 4† College Program in Physical Education

Fall:

Aquatics

Swimming, Beginning (For students with no experience in swimming) II MWF; III MWF; III TTh

Swimming, Advanced Beginning (For students with some experience in swimming) IV MWF; VI MWF

Swimming, Intermediate. VIII MWF

Swimming, Intermediate and Advanced. III MWF

Swimming, Advanced. VIII MWF

Red Cross Life Saving. IV MWF

Body Building

Individual Body Building. I MWF; VI MWF; III TTh

Posture and Conditioning Exercises. III MWF; VIII MWF

Individual Sports

Archery, Elementary. VII MW; VI MWF

Badminton, Elementary. II MWF; IV MWF; III TTh

Badminton, Intermediate. I MWF

Bowling. II MWF; III MWF; II TTh; III TTh

* The bowling alleys will charge students the regular cost per game.

† A fee of \$1.75 per quarter is charged for this course.

§ Student must furnish his own equipment.

¶ Intermediate and advanced classes are open only to students having had regular instruction and with permission of the instructor.

Fencing. II TTh
 Social Games and Mixers. III TTh; VI TTh
 Tennis, Elementary and Advanced Elementary. VIII MWF; V TTh

Rhythms

Ballroom Dance, Elementary. III TTh
 Square and Round Dance. II MWF; VII MWF
 Modern Dance, Elementary. IV MWF; VI MWF; VIII MWF

Team Sports

Field Hockey. III MWF
 Volleyball. I MWF; VIII MWF

Winter†:

Aquatics

Swimming, Beginning (For students with no experience in swimming) III MWF
 Swimming, Advanced Beginning (For students with some experience in swimming) VIII MWF; III TTh
 Swimming, Intermediate. VI MWF
 Swimming, Intermediate and Advanced. VIII MWF

Body Building

Individual Body Building. II MWF; VI MWF; II TTh; III TTh

Individual Sports

Badminton, Elementary. II MWF; III MWF; VIII MWF
 Badminton, Intermediate. IV MWF
 Bowling. II MWF; III MWF; II TTh; III TTh
 Fencing. VI MWF; II TTh
 Riflemarksmanship. II TTh; III TTh
 Skating, Elementary. VII-VIII M; VIII-IX M
 Skiing, Elementary. VII-VIII Th

Rhythms

Ballroom Dance, Elementary. III TTh
 Tap Dance, Elementary. II MWF
 Modern Dance, Elementary. IV MWF; VIII MWF
 Modern Dance, Intermediate and Advanced. VI MWF
 Rhythm Analysis Applied to Movement. V TTh

Team Sports

Basketball. I MWF; VIII MWF
 Volleyball. III TTh

Spring‡:

Aquatics

Canoeing. III MWF; VI TTh
 Swimming, Beginning (For students with no experience in swimming) IV MWF; II TTh
 Swimming, Advanced Beginning (For students with some experience in swimming) VI MWF; II TTh
 Swimming, Intermediate. II MWF; VIII MWF
 Swimming, Advanced and Diving. IV MWF
 Swimming, Advanced and Synchronized. VIII MWF
 Red Cross Life Saving. V MWF
 Water Safety Instructors' Courses.§ VII MWF

§ This course covers all requirements by the Red Cross for candidates for the rank of "Water Safety Instructor."

‡ Intermediate and advanced classes are open only to students having had regular instruction and with permission of the instructor.

Individual Sports

- Archery, Intermediate. II TTh
 Golf, Elementary. § I MWF; VI MWF; IX MWF; V TTh
 Golf, Intermediate. § VII MWF; VIII MWF
 Golf, Advanced. §¶ Ar. Ar.
 Tennis, Elementary. I MWF; II MWF; IV MWF; VI MWF; I TTh; V TTh; VI TTh
 Tennis, Intermediate and Advanced. III MWF; III TTh

Rhythms

- Square and Round Dances. II MWF; VII MWF
 Modern Dance, Elementary. IV MWF; VIII MWF
 Modern Dance, Intermediate and Advanced. VI MWF

Team Sports

- Softball. III MWF
 Volleyball. VIII MWF

8s. †† Horseback Riding, Elementary. 3:00 Th; Intermediate 4:00 Th

The following courses are open, with credit, to students in the College of Science, Literature, and the Arts:

- 25f,w. First Aid (1 cred.; no prereq.) I MW; II MW
 27s. Instructors' Course in First Aid (1 cred.; prereq. Standard and Advanced First Aid Certificate) IV MW
 54s. ‡ Camp Leadership (2 cred.; no prereq.) VIII MWF
 80f. Principles of Rhythm (2 cred.; prereq. some rhythm experience) VIII MW Bockstruck
 87w. Dance Composition (2 cred.; prereq. consent of instructor) VIII TTh Bockstruck
 88s. Advanced Problems in Dance Composition (2 cred.; prereq. 87) VIII and 2 hrs. ar. TTh Bockstruck

PHYSICS

Major advisers in the College of Science, Literature, and the Arts—Professors Buchta and Valasek; Associate Professor Wall.

Major sequence in the College of Science, Literature, and the Arts—Courses 101-103-105 and 107-109-111, plus 6 additional credits in Senior College courses.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Buchta.

Requirements for a teacher's certificate—Courses 7-8-9. This is a general course in physics extending through three quarters.

Major recommendation: The above general courses and in addition Courses 107-109-111 and nine credits selected from 110-112, 134, 136, 144.

Minor recommendation: The above general course plus six credits selected from Courses 107-109-111, 134, 136, 144.

For a specialized curriculum in natural science see the *Bulletin of the College of Education*.

Prerequisites for any course in Physics may be waived if a petition for registration in the course is granted by the department.

‡ A physical education fee of \$1.75 per quarter is charged for this course.

†† See instructor for special charge for this course. No course fee is charged.

§ Students must supply their own equipment.

¶ Intermediate and advanced classes are open only to students having had regular instruction or by permission of the instructor.

Junior College Courses

- 1f-2w†-3s. Introduction to Physical Science. Lectures and experimental demonstrations of the principles underlying physical phenomena. A course designed for those who wish a general cultural introduction to physics but will not major in that subject (9 cred.; prereq. high school algebra and plane geometry) III MWF Kruglak
- 1af†-2aw†-3as.† Introduction to Physical Science—with laboratory included. Fulfills the laboratory-course requirement in Science, Literature, and the Arts (12 cred.; prereq. high school algebra and plane geometry) Lect. III MWF Kruglak; lab. sections as follows: I-II M; V-VI T; IX-X T; I-II W; I-II Th; V-VI F; IX-X F Wall and assistants
- 2f-3w. Introduction to Physical Science (Second and third qtrs. of 1-2-3. See 1f-2w-3s) VIII MWF Ar.
- 2af†-3aw.† Introduction to Physical Science—with laboratory included (Second and third qtrs. of 1a-2a-3a. See 1af-2aw-3as) Lect. VIII MWF; lab. sections as follows: I-II M; VI-VII M; VIII-IX Th
- 4f†-5w†-6s.† General Physics (primarily for premedical students). Mechanics (Physics 4); heat and electricity (Physics 5); sound and light (Physics 6). Laboratory work is an integral part of course (15 cred.; prereq. Math. 15-16, Elementary Mathematical Analysis; or with permission of department chairman Math. 6, Trigonometry, and either Math. 7 or 8, which are courses in college algebra. Premedical students should take Math. 15-16) Lect. and quiz I MTWThF Ar.; lab. sections as follows: III-IV M; V-VI M; VII-VIII M; III-IV T; VII-VIII T; IX-X T; V-VI W; V-VI Th; VII-VIII Th; VII-VIII F. Wall and assistants
- 4s.† General Physics (First qtr. of 4-5-6. See 4f-5w-6s) Lect. and quiz III MTWThF Valasek; lab. sections as follows: V-VI M; VII-VIII M; I-II T; VII-VIII Th; IX-X F Wall and assistants
- 5f.† General Physics (Second qtr. of 4-5-6. See 4f-5w-6s) Lect. and quiz III MTWThF Schmitt; lab. sections as follows: IX-X M; I-II T; V-VI T; V-VI Th; VII-VIII Th Wall and assistants
- 7f†-8w†-9s.*† General Physics (primarily for students majoring in physics, mathematics, or chemistry and for students in the Institute of Technology). Mechanics (Physics 7); heat and electricity (Physics 8); sound, light, and modern physics (Physics 9). Laboratory work is an integral part of course (15 cred.; prereq. registration in differential calculus. Courses should be taken in order given above) Lect. II MTWThF Williams; II MTWThF Kruglak; IV MTWThF Lofgren; lab. sections as follows: VII-VIII M; IX-X M; I-II T; VII-VIII T; V-VI W; I-II Th; III-IV Th; V-VI Th; VII-VIII Th; IX-X Th; I-II F; III-IV F; V-VI F; VII-VIII F; IX-X F Wall and assistants
- 7w†-8s.*† General Physics (First and second qtrs. of 7-8-9. See 7f-8w-9s) Lect. and quiz V MTWThF Ar.; lab. sections as follows: III-IV M; VII-VIII M; I-II T; VII-VIII T; IX-X Th; VII-VIII F; Ar. Wall and assistants
- 7s.† General Physics (First qtr. of 7-8-9. See 7f-8w-9s) Lect. and quiz VII MTWThF Lofgren; lab. sections as follows: V-VI M; I-II T; III-IV T; V-VI Th; IX-X Th; III-IV F Wall and assistants
- 8f†-9w.*† General Physics (Second and third qtrs. of 7-8-9. See 7f-8w-9s) Lect. and quiz VII MTWThF Oppenheimer; IX MTWThF Ar.; lab. sections as follows: I-II T; III-IV T; V-VI T; VII-VIII T; I-II Th; III-IV Th; V-VI F; IX-X F
- 9f.*† General Physics (Third qtr. of 7-8-9. See 7f-8w-9s) Lect. and quiz II MTWThF Ar.; V MTWThF Ar.; lab. sections as follows: IX-X M; I-II T; VII-VIII T; V-VI Th; III-IV Th; VII-VIII Th; VII-VIII F Wall and assistants

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

Senior College credit is allowed for Physics 8 and 9 to students not majoring in Chemistry, Mathematics, or Physics.

73w. Intermediate Thermodynamics. Fundamental concepts. Temperature and its measurement, equations of state, Carnot cycle, entropy and other thermodynamic functions, first and second laws. Some practical applications (3 cred.; jr., sr.; prereq. 15 cred. in physics, Math. 51) II MWF Nier

101f-103w-105s. Theoretical Physics. An analytical survey of fundamental principles of mechanics, sound, heat, light, electricity, and magnetism, designed to supplement the general course and to prepare students for more specialized graduate courses (15 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 106 or registration in 106) I MTWThF Nier

* Senior College credit is allowed for Physics 8 and 9 to students not majoring in Chemistry, Mathematics, or Physics.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$2 per quarter is charged for this course.

- 107f-109w-111s. Modern Physics. Selected topics in modern physics such as photoelectric effect, mass spectroscopy, ionization of gases, optical spectra, nuclear physics, radioactivity, X rays (9 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51) VI MWF Oppenheimer
- 110w,s†-112w,s.‡ Modern Experimental Physics. Laboratory work. Characteristics of vacuum gauges, mass spectroscopy, electronic tubes and associated circuits, radioactivity, Geiger counters, ionization of gases (3 cred. per qtr.; jr., sr., grad.; prereq. 144) VI-IX TTh Schmitt
- 114f,w,s-116f,w,s-118f,w,s.‡ Elementary Physical Investigation. Special problems, either experimental or theoretical in which the student may have some special interest. Permission of department chairman required for registration (3 cred. per qtr.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51) Ar. Ar. Ar.
- 131f. Geometrical Optics. Theory of mirrors, prisms, and lenses. Theory of diaphragms and brightness of images. Optical instruments (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51) II TThS Valasek
- 133w. Physical Optics. Theory of interference and interferometers. Theory of diffraction, resolving power, and diffraction gratings. Polarized light, crystal optics, and applications (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51) II TThS Valasek
- 134f,w.‡ Experimental Optics. Laboratory work in spectrometry, optics of compound lenses, photometry, absorption, interferometry, and polarized light (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics) VII-IX TTh Valasek
135. *Spectroscopy*. Light sources, instruments and methods used in spectroscopy of the X-ray, ultraviolet, visible, and infrared regions of the spectrum (3 cred.; jr., sr., grad.; prereq. 15 credits in physics, Math. 51) (*Not offered*)
- 136w,s.‡ Spectrum Analysis. Laboratory work dealing with the measurement of wave lengths, intensities, and absorption coefficients in the infrared, visible, and ultra-violet regions of the spectrum (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics) VII-IX TTh Valasek
- 144f.‡ Electricity Measurements. An experimental course covering ballistic and current galvanometers, magnetic flux measurements, potentiometer methods, D.C. bridges, and audiofrequency A.C. bridges (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51) Lect. III TThS Wall; lab. sections as follows: VI-IX M; VI-IX Th
- 146.* Physics of Vacuum Tubes and Associated Circuits. Thermionics. (3 cred.; prereq. 144 and permission of instructor) Ar. Ar. Ar.
- 181f-183w-185s. Atomistics and Elementary Quantum Mechanics. Review of mechanics and electro-dynamics and introduction to quantum mechanics, atomic and molecular structure, and spectra, X-ray and photoelectric effect, radioactivity and elementary nuclear physics (3 cred. per qtr.; sr., grad.; prereq. 101-103-105, Math. 107 or permission of instructor) IV MWF Tate
- Zool.185w. †† Biophysics. Survey of the theoretical and experimental aspects of biology which can be studied by quantitative physical means (3 cred.; jr., sr., grad.; prereq. 10 cred. in zool. and consent of instructor. Physics recommended) Ar. Ar. Schmitt
- 191f-192w-193s. Introduction to Mathematical Physics. An integrated survey with particular emphasis on the partial differential equations of classical mathematical physics. Special topics from mechanics, elasticity, hydrodynamics, acoustics, electromagnetic theory, heat flow, thermodynamics and statistical physics (9 cred.; sr., grad.; prereq. Phys. 101-103-105, five credits from Math. 107-108 or equivalent) III MWF Hill

PHYSIOLOGICAL CHEMISTRY

MEDICAL SCHOOL

Major adviser in the College of Science, Literature, and the Arts—Dr. Barnum.

Major sequence in the College of Science, Literature, and the Arts—Course 100-101; 15 credits in approved Senior College courses in related fields of chemistry, physics, or biology.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Senior College Courses

Senior College courses in this department are open to Junior College students only by permission of the Students' Work Committee. See a statement on page 26.

* The schedule for this course is uncertain. Students wishing to take it should consult the department.

† A fee of \$2 per quarter is charged for this course.

†† A fee of \$1.50 is charged for this course.

‡ Students may enter any quarter.

- 50f. Physiological Chemistry (4 cred.; primarily for phys. ed., dental hygiene, and nursing students§; jr., sr.; prereq. inorganic chemistry) VI MTWThF Frame, Carr, and others
- 100f.† Physiological Chemistry (7 cred.; jr., sr.; prereq. org. chem. and physics) Lect. IV MWF; quiz I F; lab. sections as follows: I-III MW; I-III ThS Armstrong, Barnum, Carr, Cohen, Glick
- 101w.‡ Physiological Chemistry (6 cred.; jr., sr.; prereq. 100) Lect. IV MWF; quiz I F; lab. sections as follows: I-III MW; I-III ThS Armstrong, Barnum, Carr, Cohen, Glick

PHYSIOLOGY

MEDICAL SCHOOL

Major adviser in the College of Science, Literature, and the Arts—Dr. King.

Major sequences in the College of Science, Literature, and the Arts—

Sequence A. Physiology. Course 103-104; 15 credits in approved Senior College courses in related fields.

Sequence B. Biophysics. Courses will be arranged by Professor Stenstrom with interested students, subject to the approval of the assistant dean for the Senior College.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Junior College Courses

- 4f.* Human Physiology (4 cred.; prereq. 1 qtr. zool., 1 qtr. chem.) Lect. III MWF; conf. IV F Hemingway and others
- 4s.* Human Physiology (See 4f) Lect. VIII T and VII-VIII Th; conf. VII T Hemingway and others

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 58w.* Human Physiology (5 cred.; primarily for dental students§; sr.; prereq. zool. and Physiol. Chem. 56, 57) Ar. Ar. King and others
- 59s.* Human Physiology (5 cred.; sr.; prereq. 58 or equiv.) Ar. Ar. King and others
- 60s. Human Physiology (6 cred.; prereq. courses in physiological chemistry and human or mammalian anatomy; primarily for Medical Technology and 5-year nursing students) Lect. IV TThS and II S; conf. II T; lab. sections as follows: (Med. Tech.) VII-IX F; (5 yr. Nurses) I-III Th Lifson and others
- 103f.** Physiology of Circulation, Respiration, etc. (9 cred.; jr., sr.; prereq. zool. and org. chem.; primarily for medical and graduate students) Lect. I MTWThFS; conf. III TS; lab. sections VI-VIII MW; II-IV MW Visscher, Hemingway, King, and others
- 104w.** Physiology of Endocrines, Nervous Systems, etc. (6 cred.; lect. only, 4 cred.; jr., sr.; prereq. 103 or org. chem. and neurology; primarily for medical and graduate students) Lect. IV MTWF; conf. VII F; lab. sections as follows: 9:00-11:20 MW; 1:30-4:00 MW Visscher, Gellhorn, Bittner, and others

For other courses see the bulletin and programs of the Medical School.

POLITICAL SCIENCE

Major advisers—Professors Anderson, Mills, Quigley, and Short; Associate Professor Christensen; Assistant Professors Levi, McClosky, McLaughlin.

Preparation for Senior College work—Nine credits in courses numbered from 1 to 25 inclusive, except as otherwise noted in the prerequisites for particular Senior College courses.

* Will not count for credit for admission to the Medical School except by permission of the dean of that school.

‡ Others may be admitted by special permission.

† Permission of major adviser (Dr. Barnum) required for registration.

** Students may register for lectures without laboratory.

Preparation for a major sequence and for the major in international relations—Twelve credits, including Course 1-2 (6 cred.) or 5 (5 credits) and 6 credits in 7, 9-10, 15, or 25; plus suitable preparation in History (1-2-3, 4-5-6, or 20-21-22), Economics (6-7 and 5) or Sociology (1 and 45). In addition Philosophy 2 and Psychology 1-2 are recommended.

Major sequence—The preparatory work noted above is designed to provide a general knowledge of (1) the American system of government, and (2) the principal terms and concepts of political science. To this knowledge the major sequence should add the following: (3) a knowledge of the works of a number of great contributors to political ideas; (4) fairly exact and thoro knowledge of some extensive part of three of the following fields of political science: (a) American government, politics, and administration; (b) public law; (c) comparative modern government; (d) political theory; (e) local government and administration; (f) international law, organization, and relations. In addition the student should show the ability to study independently and to write a satisfactory term paper in at least one of the three chosen fields.

To these ends the student will take in each of his three fields at least one 9-credit course or a three-quarter sequence of related courses totaling 9 credits. Thus the requirement for the major is at least 27 credits in Senior College courses in political science. The major and minor work should constitute an integrated plan of study.

Major in international relations (training for the foreign service)—A special program in international relations and foreign areas will be arranged for students of good standing who desire a general introduction to this field. Courses are drawn from Political Science, Economics, History, Geography, and related departments. Those intending to take the examinations for the United States foreign service are advised to follow this program and to prepare themselves adequately in modern foreign languages. See page 76 in this bulletin and special bulletins on Preparation for Foreign Service and on International Relations and Area Study; consult Mr. Quigley, Mr. Christensen, Mr. Levi, or Mr. McLaughlin.

Special readings and honors courses—Students of high ability who wish to specialize or to study for graduation honors are advised to take Course 91-92-93. This course may be elected for independent work in any of the six fields noted above.

Major advisers in the College of Education—Associate Professors Kirkpatrick and Christensen.

Requirements for a teacher's certificate—Major recommendation: At least 36 credits in political science including 1-2-3, either 7, 9-10, 15, or 25, and at least 18 credits in Senior College courses.

Minor recommendation: At least 18 credits in political science, including 1-2-3, either 7, 9-10, 15, or 25, and 6 credits in Senior College courses.

For a comprehensive curriculum in social studies, see *College of Education Bulletin*.

Note for graduate students—Courses in political science that are indicated as being open to juniors, seniors, and graduates may be taken by graduate students for full credit, subject to the requirement of additional work over and above that assigned to undergraduates, or they may be taken by graduate students for reduced credit.

Junior College Courses

1f-2w†-3s. American Government and Politics. An analysis of the principles, organization, procedures, and functions of government in the United States—national, state, and local. Attention will be given throughout to current issues (9 cred.; no prereq.) IV MWF Christensen; I TThS Ar.

1w-2s.† American Government and Politics (First two qtrs. of 1-2-3. See 1f-2w-3s) II MWF Ar.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

- 5f,w,s.‡ American Government and Politics (Covers most of Course 1-2) (5 cred.; no prereq.) VI MTWThF Ar.
- 7f,w,s. Comparative European Government. The governments of Great Britain, France, Italy, Germany, and the U.S.S.R. Constitutions; governmental organizations; parties and elections (3 cred.; no prereq.) III MWF Ar.
- 9f-10w.*† Fundamentals of Government and Politics. An introductory survey and analysis of modern political institutions and functions. Topics studied include: the rise of the national state; functions of government; government and the economic order; centralization and decentralization; distribution of powers; political parties (6 cred.; no prereq.) III TThS Ar.
- 15f. Elements of Political Science. An examination of the democratic and autocratic state in theory and practice. (3 cred.; no prereq.) VI MWF Lippincott
- 15w. Elements of Political Science (See 15f) II TThS Lippincott
- 15s. Elements of Political Science (See 15f) III TThS Ar.
- 25f. World Politics. Introduction to contemporary international relations; the policies of the great powers; nationalism; imperialism; internationalism (3 cred.; no prereq.) II TThS Mills
- 25s. World Politics (See 25f) VI MWF Mills

Senior College Courses

Senior College courses in this department are open to Junior College students who have an average grade of C in the prerequisite courses, subject to the general rule that courses which carry graduate credit may not be taken earlier than the third quarter of the student's sophomore year.

- 51f-52w†-53s. Field Work in Government and Politics. Field study of political organization, leadership, and activities in the local community; performance of typical operations in government such as preparing and presenting reports, drafting bills, formulating budgets, conducting meetings and elections (9 cred.; jr., sr.; prereq. 9 cred.) Registration limited to Minnesota residents. Lect. II TTh; lab. III T (for Twin Cities residents) III Th (other Minnesota residents) Naftalin
- 80f. National Government in the United States—with special reference to current problems and developments (3 cred.; jr., sr.; no prereq. Not open to sophomores or to students who have had Pol.Sci. 1-2 or equiv.) IV MWF Short
- 85s. Problems of World Politics (3 cred.; jr., sr.; prereq. 25 or Hist. 1-2-3 or consent of instructor) II MWF Mills
- 91f-92w-93s. Honors Work in Selected Fields (Cred. ar.; jr., sr.; prereq. 18 cred.; consult major advisers) Ar. Ar. Ar.
97. *American and European Colonies of Today* (3 cred.; jr., sr.; prereq. 6 cred. or consent of instructor) (*Not offered*)
- 101f. Principles of the American Constitution I. Nature of constitutions, judicial review, national, state, interstate relations (3 cred.; jr., sr., grad.; prereq. Pol.Sci. 1-2 or equiv.) II TThS Anderson
- 102w. Principles of the American Constitution II. Organization and powers of the national government (3 cred.; jr., sr., grad.; prereq. 101 or equiv.) II TThS Anderson
- 103s. Principles of the American Constitution III. Constitutional rights, due process and equal protection of the law (3 cred.; jr., sr., grad.; prereq. 101 or 102 or equiv.) II TThS Anderson
- 104-105-106. *American Constitutional Development*. Influence of constitutionalism on American institutions; antecedents of our constitutional system; framing of the Constitution of 1787; executive, legislative, judicial roles in constitutional change; issues and trends in constitutional growth (9 cred.; jr., sr., grad.; prereq. 9 cred. or Hist. 20-21-22) (*Not offered*)
- 108w. Legislative Organization and Procedure. A study of Congress and the state legislatures at work (3 cred.; jr., sr., grad.; prereq. 6 cred.) IV MWF Short
- 116f-117w.† Local Government: Theory of Local Government, Major Functions and Supervision, Areas, Organization, Politics and Administration (6 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor) I MWF Ar.
- 118s. Local Government: Legal Status, Powers, and Responsibilities. Special legislation; home rule charters; corporate nature (3 cred.; jr., sr., grad.; prereq. 116 or consent of instructor) I MWF Ar.
- 120f. Municipal Functions (3 cred.; jr., sr., grad.; prereq. 6 cred.) II TThS Ludwig
- 121w. Municipal Administration (3 cred.; jr., sr., grad.; prereq. 120 or consent of instructor) II TThS Ludwig
- 122s. Municipal Problems (3 cred.; jr., sr., grad.; prereq. 121 or consent of instructor) II TThS Ludwig

* Students who receive credit for this course may not receive credit for Political Science 15.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ This course covers most of Political Science 1-2. No student will be given credit for both courses 1-2 and 5. Course 5 may be substituted for 1-2 whenever 1-2 is required.

- 123f. City Planning. General survey of the economic, governmental, social, and technical phases of city planning and group housing (The same as Architecture 104, Economics 111, and Sociology 106 (3 cred.; sr., grad.; no prereq.) III MWF Jones, Anderson, Caplow, Filipetti, Vaile
- 124f-125w. Recent Social Legislation. With special reference to the fields of social insurance, general assistance, housing, and health (6 cred.; jr., sr., grad.; prereq. 6 cred.) VII MWF Christensen
- 126w-127s. Government and the Economic Order (6 cred.; jr., sr., grad.; prereq. 9 cred.) IV TThS Ar.
- 131f. Public Administration: Organization and Areas, Administrative Responsibility (3 cred.; jr., sr., grad.; prereq. 6 cred.) II MWF Short
- 132w. Public Administration: Personnel Administration (3 cred.; jr., sr., grad.; prereq. 131 or consent of instructor) II MWF Short
- 133s. Public Administration: Financial Administration (3 cred.; jr., sr., grad.; prereq. 131 or consent of instructor) II MWF Short
135. *Problems of Public Planning* (2 cred. without term paper, 3 cred. with term paper; jr., sr., grad., and soph. with consent of instructor; prereq. 9 cred. (*Not offered*))
- 137f. American Political Parties. The role and functions of the party in American Government; party composition and organization; the process of nomination and policy formulation; the regulation of party organization and activities (3 cred.; jr., sr., grad.; prereq. 6 cred. or 12 cred. in soc. sci.) II MWF Christensen
138. *American Political Campaigns and Elections* (3 cred.; jr., sr., grad.; prereq. 6 cred. or 12 cred. in soc. sci.) (*Not offered*)
- 141f-142w.† European Governments: Theory and Practice (6 cred.; jr., sr., grad.; prereq. 6 cred. or 12 cred. in soc. sci.) IV MWF McClosky
- 143s. Government of the U.S.S.R. and Adjacent States (3 cred.; jr., sr., grad.; prereq. 6 cred.) IV MWF McClosky
- Psy.147s. Political Psychology (3 cred.; jr., sr., grad.; prereq. Psy. 140) III TThS Bird
- 149f. Government and Politics of the British Empire—India and the Tropical Colonies (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) III MWF Mills
- 150w. Government and Politics of the British Empire—Development of Dominion Status (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) III MWF Mills
- 151s. British Problems of Closer Union. Problems of unity within the British Dominions; regional unions with adjacent states (3 cred.; jr., sr., grad.; prereq. 149-150 with grade of C+ or better, or consent of instructor) III MWF Mills
- 155s. Government in Latin America. An analysis of the factors that have conditioned constitutional and political organization in Latin America with emphasis on Argentina, Brazil, Chile, and Mexico (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) III MWF Christensen
- 160f. American Political Thought (3 cred.; jr., sr., grad.; prereq. 6 cred. in pol. sci. or 12 cred. in soc. sci. or consent of instructor) III TThS Kirkpatrick
- 161w. Problems of Democracy (3 cred.; jr., sr., grad.; prereq. 6 cred. in pol. sci. or 12 cred. in soc. sci. or consent of instructor) III TThS Kirkpatrick
- 162s.§ Recent Political Thought (3 cred.; jr., sr., grad.; prereq. 6 cred. in pol. sci. or 12 cred. in soc. sci. or consent of instructor) III TThS Kirkpatrick
- 164f. Development of Political Thought: Greece and Rome (3 cred.; jr., sr., grad.; prereq. 6 cred. in pol. sci. or 12 cred. in soc. sci. or consent of instructor) IV TThS Kirkpatrick
- 165w. Development of Political Thought: The Middle Ages (3 cred.; jr., sr., grad.; prereq. 6 cred. in pol. sci. or 12 cred. in soc. sci. or consent of instructor) IV TThS Kirkpatrick
- 166s. Development of Political Thought: Early Modern (3 cred.; jr., sr., grad.; prereq. 6 cred. in pol. sci. or 12 cred. in soc. sci. or consent of instructor) IV TThS Kirkpatrick
- 175f-176w†-177s. Conduct of American Foreign Relations. The Department of State and the Foreign Service; diplomatic and consular functions and problems; special economic and financial agencies; relations with international organizations; treaties and executive agreements; formulation of policy (9 cred.; jr., sr., grad.; prereq. 9 cred. or Hist. 93-94-95) III TThS McLaughlin
- 180f-181w†-182s. International Law. 180-181: Relation of international law to individuals, states, international community; jurisdictional problems; survey of principles developed in diplomatic practice, national courts, international adjudications; 182s: War, military occupation, war crimes, neutrality, pacific settlement (9 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor) I TThS McLaughlin
- 184f. International Organization I. Development and conditions of success. One World, Federal World, Regionalism. United Nations and regional organizations (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) I MWF Levi

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

§ No student may receive credit for both Political Science 162 and Philosophy 70.

- 185w. International Organization II. Specialized agencies and other organs for the promotion of international cooperation, especially in the social and economic field (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) I MWF Levi
- 186s. International Organization III. Functioning of international organization. International offices and civil service. International administration (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) I MWF Levi
- 191f. Far Eastern Politics I. Political ideas, institutions, and foreign relations of China and Japan prior to the opening of the treaty era in 1842 (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) II MWF Quigley
- 192w. Far Eastern Politics II. Political development and international relations of China and Japan from 1842 to the Washington Conference, 1921 (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) II MWF Quigley
- 193s. Far Eastern Politics III. Contemporary political development and international relations of China and Japan (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) II MWF Quigley
195. *Colonial Government and the Problems of Imperialism*. Motives of American, British, Dutch, French, and Spanish colonization; ancient and modern imperialism (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) (*Not offered*)
196. *Colonial Government and the Problems of Imperialism*. Varieties of colonial rule in contemporary empires (3 cred.; jr., sr., grad.; prereq. 195 or consent of instructor) (*Not offered*)

Courses Primarily for Graduate Students

The following courses may be taken by seniors majoring in political science with consent of the instructor:

- 204w-205s.† Seminar in Public Law (6 cred.; grad.; prereq. 18 cred. in pol. sci. or consent of instructor) 1 to 2:20 TTh Ar.
- 207-208-209. *Seminar in Theories of Law and Politics* (9 cred.; grad.; prereq. 18 cred. in pol. sci. or consent of instructor) (*Not offered*)
- 210f-211w-212s.† Special Seminar in Public Administration (9 cred.; grad.; admission only with consent of the staff) 3:30 to 5:20 TTh Ludwig, Short
- 214w. Seminar in Political Parties (3 cred.; grad.; prereq. 12 cred. or consent of instructor) 11:00 to 12:20 TTh Christensen
- 216f-217w-218s. Seminar in Comparative European Government (9 cred.; grad.; prereq. 12 cred. or consent of instructor) VII-VIII M McClosky
- 219-220-221. *Seminar in Political Power in the Modern World* (9 cred.; grad.; prereq. 12 cred. or consent of instructor) (*Not offered*)
- 222f-223w-224s. Seminar in Recent Political Thought, American and Foreign, with Special Reference to the Problems of Democracy (9 cred.; grad.; prereq. 12 cred. or consent of instructor) VII-VIII T Kirkpatrick
- 225f-226w-227s. Readings in the Classics of Politics (including Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Mill, Marx, Lenin, Hitler) (9 cred.; grad.; prereq. Course 15 or 164-165, which may be taken concurrently, or consent of instructor) VIII-IX TTh Lippincott
- 228s. Seminar in Political Theory: Freedom and Control in the Democratic State (3 cred.; grad.; prereq. 12 cred. or consent of instructor) VIII-IX M Lippincott
- 229f. Scope and Methods of Political Science (3 cred.; grad.; prereq. 12 cred. or consent of instructor) 11:00 to 12:20 TTh Anderson
- 236w-237s. Seminar in Federalism and Intergovernmental Relations (6 cred.; grad.; prereq. 12 cred. or consent of instructor) 11:00 to 12:20 TTh Anderson
- 238f. Topics in International Law and Diplomacy I. Survey of the historical development of the law of nations and of international judicial activity in the modern world. (3 cred.; sr. with consent of instructor, grad.; prereq. 180-181 or consent of instructor) Ar. Ar. McLaughlin
- 239w. Topics in International Law and Diplomacy II. Modern international law; an examination of recent developments and current issues in the law of collective security, international criminal law, the codification and development of law through international agencies (3 cred.; sr. with consent of instructor, grad.; prereq. 180-181 or consent of instructor) Ar. Ar. McLaughlin
- 240s. Topics in International Law and Diplomacy III. Legal aspects of international trade and finance. Status and rights of business enterprises abroad; their diplomatic protection. Legal regulation of international business transactions: tariffs, quotas, exchange restrictions; taxation; commercial treaties and conventions (3 cred.; sr. with consent of instructor, grad.; prereq. 180-181 or consent of instructor) Ar. Ar. McLaughlin
- 242f-243w-244s. Topics in Colonization and Imperialism (9 cred.; grad.; prereq. 195-196 or consent of instructor) Ar. Ar. Mills

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

- 245f-246w-247s. Seminar in Far Eastern Government and Politics (9 cred.; grad.; prereq. 191-192-193 or equiv.) VII-VIII W Quigley
 248f-249w-250s. Seminar in International Organization (9 cred.; grad.; prereq. consent of instructor)
 Ar. Ar. Levi

PSYCHOLOGY

Major advisers in the College of Science, Literature, and the Arts—Professors Bird, Elliott, Longstaff, Paterson, and Tinker, and Assistant Professors Clark and MacCorquodale.

A student considering the choice of a major in psychology should consult the Student Counseling Bureau prior to seeking his first conference with a major adviser.

Major sequences in the College of Science, Literature, and the Arts—

A. Experimental psychology. Prerequisites: 1-2 and 4-5. Course 55 is recommended. Courses 101-102-103; 125-126; and 12 additional credits in Senior College courses. Mr. Tinker.

B. Human and animal behavior. Prerequisites: 9 credits in Psychology. Courses 114; 148; 151; either 152 or 153; and 13 additional credits in Senior College courses either in psychology or zoology. Messrs. Elliott and MacCorquodale.

C. Differential psychology. Prerequisites: 1-2 and 4-5. Course 3 is recommended. Course 70 or equivalent; 125-126-127; 130 or 160; Educational Psychology 120; 3 credits chosen from Ed.Psy. 140, 141, 142; and 6 additional credits in Senior College courses. Messrs. Paterson, Longstaff, and Clark.

D. Social and political psychology. Prerequisites: 1-2 and 4-5. Course 70 or equivalent; 140; 141; 167; 168 and twelve additional Senior College credits. It is recommended that students elect Journalism 115 and 130-131 as part of the twelve additional credits required. Psy. 56 is recommended to students with certain interests. Messrs. Bird and Clark.

All students majoring in psychology are strongly urged to elect courses in mathematics, especially Math. 15-16. Math. 15-16 or Math. 51 is required for students planning to enter graduate work in clinical psychology.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Honors course—Students interested in the work of an honors course should consult the chairman of the department.

Junior College Courses

Af,w,s.¶ Elementary Psychology. An introduction to psychology with special attention to its applications.

For students who do not intend to take either Senior College courses in Psychology or a professional curriculum which requires Psy. 1-2. See important footnote to this course and to Psy. 1-2 (5 cred.; fr.* soph.; no prereq.) V MTWThF Longstaff, MacCorquodale

1f-2w.†§ General Psychology. A general introduction to the study of human behavior with emphasis on the development of the individual (6 cred.; soph., jr., sr.; no prereq.) III MWF; V MWF Elliott and others

1w-2s.†§ General Psychology (See 1f-2w) II MWF MacCorquodale; VIII MWF Heron

1s-2s.†§ General Psychology (6 cred.; soph., jr., sr.; no prereq.) II MTWThFS; IV MTWThFS Ar.

* This course is open to a limited number of first and second quarter freshmen with the approval of their advisers and to third quarter freshmen with a C average.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

§ Psychology 1-2 is intended to be the normal beginning course in psychology. It is a prerequisite for all advanced courses in psychology. It is the course prerequisite to Business, Education, Law, Medicine, and Social Work. Psychology 1-2, together with Psy. 4-5, meets the natural science requirement for entrance to the Senior College under Plan I.

¶ Psychology A is not a course which can be taken in place of Psy. 1-2 where the latter is required. It is intended primarily for students in home economics, dental hygiene, and the three-year course in nursing. Not for students who expect to take Senior College courses in psychology later. Psychology A cannot be counted toward meeting the natural science requirement for entrance to the Senior College. No credit will be given for any part of Psy. 1-2 if a student has received credit for Psy. A.

- 3s. Psychology Applied to Daily Life. A course in the uses of psychological methods in solving such problems as come up in the treatment of ill health, in the courtroom, reformatory, and prison, in business offices and factories, in advertising, in education, in social and political life, in artistic creation and esthetic enjoyment, and in everyday life (3 cred.; prereq. 1-2) III MWF Longstaff and others
- 4f‡-5w.†‡ Introductory Laboratory Psychology. Simple experiments illustrating the subject matter of contemporary psychology. Included are human and animal learning, visual experience, differences in artistic, musical, and other kinds of abilities, measurement of each student's personality traits, and reactions to advertisements (4 cred.; soph., jr., sr.; prereq. may be taken with or after 1-2) (Sections limited to 48) I-II TTh; V-VI TTh; VII-VIII TTh; V-VI MW; VII-VIII MW; III-IV MW; IX-X TTh; IX-X MW; III-IV TS; I-II FS Tinker and others
- 4w‡-5s.†‡ Introductory Laboratory Psychology (See 4f-5w) I-II MW Ar.
- 4s‡,5s.† Introductory Laboratory Psychology (See 4f-5w) (4 cred.; soph., jr., sr.; prereq. may be taken with or after Psy. 1, 2 or Psy. 2) V-VI MTThF; VII-VIII MTThF; IX-X MTThF; I-II TThFS Tinker and others

Senior College Courses

In this department courses numbered between 50 and 65 are open to sophomores who have an average grade of at least C in all their courses and an average of B in the pre-requisite courses.

- 52s. Genetic Psychology. Parallelism of habits, customs, ways of living, societies, etc., between animals and human beings. Elemental forms of human behavior and characteristics in animal life. Evaluations of different modes of adaptation (3 cred.; jr., sr.; prereq. 1-2) IV MWF Heron
- 55s. Psychology of Sensation. An elementary treatment with demonstrations of sensory perception in such areas as vision, hearing, touch, and kinesthesia. Demonstrations and discussions will be related to the everyday experiences of the individual (3 cred.; jr., sr.; prereq. 1-2) IV MWF Tinker
- 56f. Psychology of Advertising. Psychological analysis of the basic principles underlying advertising and selling. Consumer research is stressed. Research techniques for investigating advertising problems and the analysis of consumer wants are considered in detail (3 cred.; jr., sr.; prereq. 1-2 and Principles of Economics) II MWF Longstaff
- 56w. Psychology of Advertising (See 56f) VII MWF Longstaff
- 65f. Advanced General Psychology. A reconsideration of the topics of general psychology with special emphasis on behavior theory and the methods of science. Historical backgrounds, learning, motivation, emotion, and language are discussed. (3 cred.; jr., sr.; prereq. 1-2) II TThS MacCorquodale
- 70f,s. Principles of Psychological Measurement. The uses and limitations of the fundamental varieties of psychological measurement. Psychophysical methods, scaling methods, and psychometric methods (3 cred.; jr., sr.; prereq. 1-2, 4-5) VI MWF Clark
- 86s. Biographical Psychology. Human personalities in relation to their ancestries, their bodies, and their environments, physical and social (3 cred.; sr.; prereq. 12 cred. in psy.) II TThS Elliott
- 90f,91w,92s. Readings in Psychology. Tutorially directed reading and preparation of reports on special topics, usually supplementing an advanced course already completed (Cred. ar.; jr., sr.; prereq. 1-2 and 3 additional cred., and written permission of instructor) Ar. Ar. Elliott, Bird, Paterson, Tinker, Heron, Longstaff, Clark, Meehl, MacCorquodale
- 101f-102w†-103s. Experimental Psychology. An advanced treatment of emotions, psychophysical methods, association, reaction time, sensation and perception. After several experiments involving the use of standard equipment, the student completes a minor research project (3 cred. per qtr.; jr., sr., grad.; prereq. 1-2; and 4-5 or equiv. in another science) VII MWF and VIII WF Tinker
- 108f. Systems of Psychology. A reading course on the chief systems or schools of theoretical psychology. A term paper is required (3 cred.; sr., grad.; prereq. preparation for advanced work in psychology and consent of instructor) Ar. Ar. Elliott
- 114w. Human Behavior. An integrative approach, examining the background, development and organization of human behavior. Consciousness and purpose are treated as properties of the living body (3 cred.; sr., grad.; prereq. 1-2; 4-5 or Zool. 1-2-3, or Phil. 1) II TThS Elliott
- 125f-126w. Psychology of Individual Differences. Quantitative studies of such factors as age, sex, race and nationality, physical traits, family heredity, and environment in the causation of individual differences in abilities and temperament (3 cred. per qtr.; sr., grad.; prereq. 1-2; 4-5 or 5 cred. in statistics) II MWF Paterson
- 125s,126s. Psychology of Individual Differences (6 cred. See 125f-126w) II MTWThFS Ar.
- 127f,w,s. Projects in the Psychology of Individual Differences (3 cred.; sr., grad.; primarily for majors in Sequence C; prereq. 125-126) Ar. Ar. Paterson, Longstaff

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per quarter is charged for this course.

- 128f-129w. Psychology of Learning. Psychological theory: its characteristics and function. Critical analysis of all learning theories and their application to problems of normal and abnormal behavior (3 cred. per qtr.; jr., sr., grad.; prereq. 9 cred. in psy.) II MWF Heron
- 130f.†† Vocational and Occupational Psychology. Psychology of individual differences in intelligence, aptitudes, interests, and training, with special reference to vocational guidance and problems of occupational adjustment. Lectures and laboratory work (3 cred.; jr., sr., grad.; prereq. 9 cred. in psy.) Lect. I MW Ar.; lab. V-VI F
- 130w.†† Vocational and Occupational Psychology (See 130f) Lect. IV TS Paterson; lab. V-VI F; VII-VIII F
- 130s.†† Vocational and Occupational Psychology (See 130f) Lect. IV TS Paterson; lab. VI-VII W; VIII-IX W
- 135f.†-136w.†-137s.‡ Occupational Counseling. Occupational information as used in counseling. Study of educational and occupational training opportunities and requirements. Psychological techniques in case analysis, interviewing, and remedial work. Types of vocational problems. Illustrative case histories (2 cred. per qtr.; sr., grad.; prereq. for 135-136, 9 cred. or consent of instructor; for 137, 130) VIII-IX M Ar.
- 140w. Social Psychology. A study of experimental investigations of group behavior. Special emphasis will be put upon the place of emotions, drives, and personality traits in the adjustment of individuals to the demands of modern societies (3 cred.; jr., sr., grad.; prereq. 1-2, 4-5, and 9 credits in Social Science) III TThS Bird
- 144f-145w.† Abnormal Psychology. Normal and abnormal behavior contrasted. Varieties of maladjustment as illustrated in criminality, deficiency, fanaticism, and insanity. Stress will be laid on the inadequacies of personality as shown in everyday life (6 cred.; jr., sr., grad.; prereq. 9 cred. in psy.; or 6 cred. in psy. and either Zool. 1-2-3 or 12 cred. in soc. sci.) IV MWF Bird
- 146s. Advanced Abnormal Psychology. Consideration of social, economic, and personal factors underlying mental abnormalities. Special emphasis on inductive and experimental studies, psychosomatic relationships, and psychoanalytic interpretations (3 cred.; sr., grad.; prereq. 144-145 and 171) IV MWF Bird
- 147s. Political Psychology. A consideration of problems and points of view falling within the area of both political science and psychology. The importance of deriving techniques for the identification of political attitudes. The part played by psychological factors in the determination of belief, propaganda, and public opinion (3 cred.; jr., sr., grad.; prereq. same as for 140) III TThS Bird
- 148w. Physiological Psychology. The elements of neural anatomy and physiology, tonus, neuromuscular set, integration, and the neural basis of learning. The treatment of these topics will stress their importance for psychology (3 cred.; jr., sr., grad.; prereq. 1-2; 4-5 or Zool. 1-2-3, or consent of instructor) IV MWF Hathaway
- 151f. Animal Psychology. Historical, philosophical and biological foundations; consciousness; motivation; learning; reasoning; judgment; abnormal behavior; social influences (5 cred.; jr., sr., grad.; prereq. 1-2; 4-5 or equiv. in another science) VI MTWThF Heron
- 152w,153s. Individual Investigations in Animal Psychology. Students may enter either quarter. Each student, working independently, attempts the solution in the laboratory of a definite problem (3 cred. per qtr.; jr., sr., grad.; prereq. 151) Ar. Ar. Heron
- 160f,w. Psychology in Personnel Work (3 cred.; jr., sr., grad. prereq. 1-2, 4-5, or 3 cred. in statistics, and Principles of Economics or permission of instructor) III MWF Longstaff, John
- 167w. Techniques and Problems of Public Opinion Analysis. Emphasis on the determinants of opinion, formulation of questions, methods of sampling, social implications of polling, and applications of polling to elections, morale, and national and international issues (3 cred.; sr., grad.; prereq. 140 or 147) VIII MWF Clark
- 168s. Research Project in Public Opinion Analysis. Students in journalism will be assigned to problems in cooperation with technical advisers in journalism (3 cred.; sr., grad.; prereq. 167) Ar. Ar. Clark
- 171w-172s.† Introduction to Clinical Psychology. A survey of the methods of clinical psychology in relation to mental deficiency, special abilities and disabilities, behavior problems, personality disorders, and psychosomatic disturbances in adults and children (6 cred.; sr., grad.; prereq. 144, either 125 or Educ.Psy. 120 or 5 credits in statistics and 6 additional cred. in psy. or child welfare, or ed. psy. Students intending to use this course professionally should postpone taking it until they are in the Graduate School) VI MWF Meehl

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per quarter is charged for this course.

†† A fee of \$2 is charged for this course.

For Graduate Students Only

- 200-201-202. History of Psychology I: European
 203-204-205. History of Psychology II: American
 210-211-212. Research Problems
 215-216-217. Basic Seminar in Psychology
 220-221-222. Personality, Its Structure and Dynamics
 225. Seminar in Contemporary Research
 230-231-232. Field Work in Psychometrics and Applied Psychology
 235-236-237. Clinical Practice in the Student Counseling Bureau
 240-241-242. Seminar in Student Personnel Work
 250-251-252. Topics in Psychology
 256. Advanced Psychology of Advertising
 260-261-262. Seminar in the Applications of Psychological Methods to the Study of Nervous and Mental Diseases
 265-266-267. Seminar in Advanced Clinical Psychology
 270. Advanced Psychological Measurement
 271-272-273. Seminar in Recent Literature of Psychology
 286. Advanced Biographical Psychology
 290. Theory of Projective Methods
 291. Practicum in Use and Interpretation of Projective Techniques
 295-296-297. Seminar in Individual Differences and Applied Psychology
 299. Tabulating Equipment Laboratory.

PUBLIC HEALTH

MEDICAL SCHOOL

Advisers in the College of Science, Literature, and the Arts—Professor Anderson; Associate Professor Thomson; and Professor Treloar for Biostatistics.

Major advisers in the College of Education—Professor Anderson; Associate Professor Grout.

Major sequence in Biostatistics in the College of Science, Literature, and the Arts—Courses 110, 111, 120, 121, 130, 131, and 18 credits in Senior College courses approved by the adviser.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Minor sequence in Public Health in the College of Education—Courses 50 or 51 or 100 and 57, 59, 102, Bact. 53, and Physiology 2, 4, or 51.

For additional details of courses of study in public health consult the *Bulletin of the School of Public Health*.

Junior College Courses

- 3f,w,s.§ Personal Health. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided (2 cred.; fr., soph.; no prereq.; not open to students who have taken Human Biol. G.C. 10C in the General College) VI MW Thomson
 4w.§ Health Problems of the Community. Prevention of disease in the family and community; relation to community health and disease control, important diseases and their prevention (2 cred.; prereq. 3 or successful passing of exam.; not open to students excused from P.H. 3 on basis of military service) VI TTh Thomson
 4s.§ Health Problems of the Community (See 4w) I TTh Thomson

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50w,s.§ Public and Personal Health. Causes of diseases and of physical defects; fundamental principles and working methods of health conservation and disease prevention. Lectures, discussions, and directed readings (3 cred.; open to jrs. and srs. who have not taken Courses 3, 4, 52, 53, or 100; no prereq.) III MWF Thomson

§ No credit is granted for this course in the major sequence in Public Health Nursing.

- 51f. § Community Hygiene. Elementary concepts of development, spread, and prevention of preventable diseases; community programs for their control (3 cred.; jr., sr.; prereq. 3; not open to students who have taken 4, 50, 52, 53, or 100 or those excused from P.H. 3 or 50 on basis of military service) II MWF Cowan
- 51s. Community Hygiene (See 51f) IV MWF Cowan
- 55w. Nursing and Social Problems in the Control of Gonorrhoea and Syphilis. History, prevalence, and epidemiology of gonorrhoea and syphilis, public health control measures; individual and family problems (2 cred.; prereq. 53 or 100 and 62. Soc. 50-51 may be substituted by presocial work students. Course 55 may be taken concurrently with any of these prerequisites) VI MW Ar.
- 57s. § Health of Infant and Preschool Child. Maternal and child health in public health program, problems of infant and maternal mortality, growth and development of infant and young child, care and feeding of normal infant; prevention and correction of physical defects (2 cred.; jr., sr.; prereq. 4, or 50, or 51, or 52, or 53) IV TTh Boynton
- 59f. Health of the School Child. Mental and physical growth; communicable diseases in the school; health appraisal; correction of physical defects; emotional problems; care of the handicapped; the school environment and its effect on child health; accident prevention and emergency care; practical problems of health supervision and administration (3 cred.; jr., sr.; prereq. 3 and 4, or 3 and 51, or 50, or 52, or 53, or 100) I MWF Grout, Thomson
- 59w. Health of the School Child (See 59f) IV MWF Grout, Thomson
- 59s. Health of the School Child (See 59f) VII MWF Grout, Thomson
- 60f.s. Tuberculosis and Its Control. History of tuberculosis movement and campaign in the United States; early diagnosis and sanatorium treatment; tuberculosis in children; psychology of tuberculosis; supervision of returned sanatoria patients; state program for eradication of tuberculosis; legislation (For nurses; others may be admitted by special permission) (2 cred.; prereq. 4 or 50 or 51 or 52 or 53 or 100 and 62) IV TS Myers
- 95f. Principles of Human Nutrition with Particular Reference to Public Health. The role of nutrients, nutritional composition of foods, food requirements, nutritional aspects of food production and processing, laws and regulations, food habits (3 cred.; prereq. 8 cred. in Chem. and 10 cred. in Biology) II TThS Mickelson
- 100f.s. Elements of Preventive Medicine and Public Health. Susceptibility and resistance to disease; occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk (4 cred. for soph. medical students; 5 cred. for nurses and others; prereq. 3 or 50, or equiv. and a course in bacteriology) Lect. II MWF Anderson; rec. III TTh; VI TTh; VII MW (f only) Anderson
- 102f. Environmental Sanitation I. Methods for promoting man's health and comfort by controlling his environment; water supply sanitation, food sanitation, pollution abatement; sewage, excreta, and waste disposal; bathing place sanitation, air hygiene, illumination, housing, control of insect and animal vectors of disease, industrial hygiene and sanitation (3 cred.; sr., grad.; prereq. 50 or 51 or 53 or 100 or permission of instructor. This course may be taken concurrently with any of these prerequisites) I TThS Whittaker, Pierce, Olson
- 103f,w,s. Public Health Bacteriology. Bacteriologic and serologic diagnosis, public health laboratory administration and methods (Cred. ar.; grad.; prereq. Bact. 101-102, 116 and permission of instructor) II-III MWF Kabler
- 106w. Public Health Administration. Structure, basic functions, and activities of public health agencies; public health laws and regulations; administrative procedures in public health practice; relationship to other governmental and social activities (3 cred.; physicians, engineers, nurses, social workers, and others by permission; prereq. 53 or 100 or equiv. Course 106 may be taken concurrently with any of the prerequisites) I TThS Anderson
- 108w. Care of the Handicapped Child. Extent of problem; history and development of program for care; types of physical defects; means of prevention and correction; medical social aspects; vocational training and placement (2 cred.; prereq. 53, 57, 58, or 100) VI TTh Ar.
- 125w. The Community Health Education Program. A course intended primarily for those preparing for leadership in community health education to include organization, administration, and evaluation of community health education programs and the selection, preparation, and use of media commonly employed in health education (3 cred.; prereq. 53, or 100, or 104, and 106 or to be taken concurrently with 106) VIII MWF Grout
- 126f.s. Industrial Health Problems I. Organization of industrial health services, state programs in industrial hygiene. Industrial hazards and their control. Procedures in industrial health services (3 cred.; prereq. 53 or 100, Chem. 1-2 or equiv., or permission of instructor) VI MWF Foker
- 141s. Social and Economic Aspects of Medical Care. A survey of social and economic forces affecting administration and financing of medical care; the need for sickness insurance, group hospitalization; the concern of government in the provision of prepaid medical care. (3 cred.; prereq. 106 or permission of instructor) VIII MWF Weaver

§ No credit is granted for this course in the major sequence in Public Health Nursing.

For other courses in public health see the *Bulletin of the Graduate School*, or the *Bulletin of the School of Public Health*.

BIOSTATISTICS

- 110f. Biometric Principles. Introduction to statistical analysis with emphasis on basic principles of statistical reasoning. The description of univariate distributions, normal correlations, simple tests of significance, and goodness of fit (3 cred.; jr., sr., grad.; prereq. 18 cred. in biol. sci. or math. through anal. geom.; to be taken with 111) (Fall quarter designed primarily for students taking entire biostatistical sequence of 110-111, 120-121, 130-131) III TThS Treloar
- 110w. Biometric Principles (See 110f) (Winter quarter designed primarily for undergraduates) I TThS Hartman
- 110s. Biometric Principles (See 110f) (Spring quarter designed primarily for graduate students) I TThS Thornton
- 111f.‡ Biometry Laboratory. Practical training in machine calculation and statistical techniques discussed in 110, with which it is to be taken concurrently (2 cred.) I-II MWF; III-IV MWF; VI-VII MWF; VIII-IX MWF; I-II TThS; VI-VIII TTh
- 111w. Biometry Laboratory (See 111f) III-IV TThS; VI-VII MWF; VIII-IX MWF
- 111s.‡ Biometry Laboratory (See 111f) VI-VII MWF; VIII-IX MWF; III-IV TThS
- 120s. Correlation Analysis. Total, partial, and multiple normal correlation and regression; correlation ratio; contingency; biserial methods; tetrachoric correlation; rank-order correlation; the symmetrical table and intra-class correlation (3 cred.; sr., grad.; prereq. 110 or consent of instructor; to be taken with 121) III TThS Roberts
- 121s.‡ Correlation Laboratory. Practical training in the techniques of 120, with which it is to be taken concurrently (2 cred.) I-II MWF; III-IV MWF; I-II TThS; VI-VIII TTh
- 130w. Random Sampling Distributions. A discussion of the sampling distributions of the more familiar statistics, the principles of statistical inference, and analysis of the problems of interpretation of differences, with special reference to small samples (3 cred.; sr., grad.; prereq. 110 or consent of instructor) III TThS Thornton
- 131w.‡ Sampling Laboratory. Study of the distributions of statistics derived from small samples by practical test (2 cred.; to be taken with 130) I-II MWF; III-IV MWF; VI-VIII TTh; I-II TThS
- 201f,w,s. Topics in Biometry (Cred. ar.; individual assignments only, with consent of instructor) Ar. Ar. Treloar

Other courses in Biostatistics designed primarily for students in Public Health, Medicine, or Graduate School, may be opened to students in S., L., and A. by special arrangement with Mr. Treloar.

PHYSIOLOGICAL HYGIENE

- 91f. Principles of Human Function. Tissues, physicochemical forces, metabolism, digestion, respiration, neuromuscular functions, circulation (4 cred.; jr., sr.; prereq. 8 cred. in chem. and 4 cred. in human anat. or equivalent; primarily for students in Physical Education and Public Health) Lect. IV MWF; lab. VI-VIII W Henschel, Mickelson
- 92w. Principles of Human Function. Endocrines, excretion, reproduction, special senses, central nervous system, growth and senescence (4 cred.; jr., sr.; prereq. 91 or equiv.; primarily for students in Physical Education and Public Health) Lect. IV MWF; lab. VI-VIII T Henschel, Brozek
- 95f. Principles of Human Nutrition—with Particular Reference to Public Health. The role of nutrients, nutritional composition of foods, food requirements, nutritional aspects of food production and processing, laws and regulations, food habits (3 cred.; prereq. 8 cred. in chem. and 10 credits in biol.) II TThS Mickelson
- 194f. Human Factors in Industry. Job requirements, physiological cost of work, industrial fatigue, industrial hazards, environment, accidents, absenteeism (3 cred.; sr., grad.; prereq. 20 credits in at least two of the following: chem., biol., psy., engineering; primarily for students in the Schools of Business Administration, Technology, and Public Health) Ar. Ar. Brozek, Simonson

RADIO

Courses relating to radio are offered by the School of Journalism and the Department of Speech to juniors and seniors who have had the fundamental prerequisite courses.

‡ A fee of \$1 per quarter is charged for this course.

ROMANCE LANGUAGES

Major advisers in the College of Science, Literature, and the Arts—Professor Pattison; Associate Professors Grismer and Clefthon.

Major sequences in the College of Science, Literature, and the Arts—

FRENCH

Courses 70-71-72 or 73-74; 53-54, if the student has not taken French 20; a minimum of 18 additional credits chosen from courses numbered 50 or above, of which at least 9 must be in literary courses.

ITALIAN

Twenty-four credits in courses numbered 50 or above, and 3 additional credits chosen from the following: English 140, 146-147, 148-149; French 121-122-123, 153; Italian 159-160, 161-162; Latin 121; History 153-154-155.

SPANISH

Courses 65-66-67 or 68-69; 53-54, if the student has not taken Spanish 20; 55; a minimum of 15 additional credits chosen from courses numbered 50 or above. Students planning to do graduate work in Spanish must include in this program 9 credits in literary courses numbered above 100.

A COURSE IN LATIN-AMERICAN STUDIES

See International Relations and Area Studies, page 76.

MIXED (FRENCH, ITALIAN, AND SPANISH)

Five credits in conversation and composition.

One literary course above 50, and in addition enough credits chosen from courses in any of the three languages numbered 50 or above to make a minimum of 27 credits in all.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major advisers in the College of Education—French: Associate Professor Clefthon; Spanish: Professor Pattison.

Requirements for a teacher's certificate—Major recommendations in French: 35 credits in courses numbered above 4, these courses to include Survey of French Literature and one other literary course; 50; 53, 54 (or 20); 55; 63; and 103-104-105.

Major recommendation in Spanish: 35 credits in courses numbered above 4, these courses to include 65-66-67 or 68-69 or 74-75-76; 53-54 (or 20); 55; 60 and eight credits chosen from the following: 56; 70-71-72; 103-104-105; 171-172-173.

Minor recommendation: 17 credits in one language in courses numbered above 4 including Survey of French Literature, Survey of Spanish Literature, or Survey of South American Literature.

Admission to advanced courses—No student will be allowed to elect courses more advanced than intermediate French or Spanish unless he has received an average grade of C in the intermediate courses.

FRENCH

Junior College Courses

1f-2w. Beginning French (10 cred.; no prereq. Students submitting one year of high school French for entrance must take Course 2; those offering two years must take Course 3) I MTWThF; IV MTWThF; VI MTWThF

1w-2s. Beginning French (See 1f-2w) III MTWThF; VII MTWThF

1s. Beginning French (First qtr. of 1-2. See 1f-2w) III MTWThF; VII MTWThF

- 1af-2aw.§ Beginning French—Conversational Section (10 cred.; no prereq.) Demonstration III MTWThF plus lab. drill sections as follows: VI MTWThF; VII MTWThF
- 2f. Beginning French (Second qtr. of 1-2. See 1f-2w) III MTWThF; VI MTWThF
- 3f-4w. Intermediate French (10 cred.; prereq. 1-2 or two years of high school French. Students who have had three years of high school French will omit Course 3 and take Course 4) III MTWThF; VII MTWThF
- 3w-4s. Intermediate French (First qtr. of 3-4. See 3f-4w) III MTWThF; VI MTWThF
- 3s. Intermediate French (First qtr. of 3-4. See 3f-4w) I MTWThF; IV MTWThF; VIII MTWThF
- 3as.§ Intermediate French—Conversational Section (5 cred.; prereq. 1af-2aw) Demonstration III MTWThF plus lab. drill sections as follows: VI MTWThF; VII MTWThF
- 4f. Intermediate French (Second qtr. of 3-4. See 3f-4w) II MTWThF; VI MTWThF
- 20f,w. Oral and Written French (5 cred.; prereq. 4, or four years of high school French) VI MTWThF
- 20s. Oral and Written French (See 20f) III MTWThF

Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50f,w. French Pronunciation (3 cred.; jr., sr.; prereq. 3-4) II TThS Guinotte
- 52s. French Pronunciation and Diction (Open only to candidates for the French play) (1 or 2 cred.; jr., sr.; prereq. 3-4) Ar. Ar. Wirtz
- 53f. French Composition (3 cred.; jr., sr.; prereq. 3-4) VI MWF Fermaud
- 54w-55s. French Conversation (6 cred.; jr., sr.; prereq. 53 or 20) VI MWF Fermaud
- 63f-64w. Advanced French Composition (6 cred.; jr., sr.; prereq. 53 or 20 with a grade of B) VII MWF Guinotte
- 65s. Advanced French Conversation (3 cred.; jr., sr.; prereq. 54-55 or 20 with a grade of B) VII MWF Guinotte
- 70f-71w-72s. Survey of French Literature (9 cred.; jr., sr.; prereq. 3-4) IV MWF Clefton
- 73w-74s. Survey of French Literature. The same as 70-71-72 (10 cred.; jr., sr., prereq. 3-4) III MTWThF Brackney
- 75f-76w-77s. French Civilization and Culture (9 cred.; jr., sr.; prereq. 3-4) III MWF Fermaud
- 100s. Practical French Phonetics (3 cred.; jr., sr., grad.; prereq. 20 or 53-54 or permission of instructor) VIII MWF plus one hr. of lab. ar. Guinotte
- 103f-104w-105s. French Syntax and Composition (3 cred.; jr., sr., grad.; prereq. 63 or reg. in 63) VI F Barton
- 107s. Cours de Style (3 cred.; jr., sr., grad.; prereq. 63-64 or permission of instructor) Ar. Ar. Guinotte
- 110f. French Literature: 19th Century—Chateaubriand and Romantic Prose. (3 cred.; jr., sr., grad.; prereq.*) II MWF Barton
- 111w. French Literature: 19th Century—Drama (3 cred.; jr., sr., grad.; prereq.*) II MWF Barton
- 112s. French Literature: 19th Century—Poetry (3 cred.; jr., sr., grad.; prereq.*) II MWF Clefton
- 113w. Sainte Beuve and the Modern French Critics (3 cred.; jr., sr., grad.; prereq.* or permission of instructor) Ar. Ar. Desgranges
- 115f-116w-117s. French Literature: 17th Century (9 cred.; jr., sr., grad.; prereq.*) IV MWF Fermaud
- 118f-119w-120s.** French Literature: 18th Century (9 cred.; jr., sr., grad.; prereq.*) IV TTh and one hr. ar. Sirich
- 121-122-123. French Literature: 16th Century (9 cred.; jr., sr., grad.; prereq. 9 cred. in literature courses above 74 or permission of instructor) (Not offered)
130. French Romantic Poetry—Victor Hugo (3 cred.; jr., sr., grad.; prereq.*) (Not offered)
131. Parnassian Poetry (3 cred.; jr., sr., grad.; prereq.*) (Not offered)
- 132f. Baudelaire, Verlaine, Rimbaud (3 cred.; jr., sr., grad.; prereq.*) Ar. Ar. Clefton
146. Contemporary French Dramatic Literature (3 cred.; jr., sr., grad.; prereq.*) (Not offered)
156. French Realistic Novel (3 cred.; jr., sr., grad.; prereq.*) (Not offered)
157. Modern French Novel: France, Loti, Bourget (3 cred.; jr., sr., grad.; prereq.*) (Not offered)
158. Contemporary French Novel I. Course conducted in French (3 cred.; jr., sr., grad.; prereq.*) (Not offered)

* Prerequisite is 70-71-72 or 73-74.

§ The conversational method will be used in these sections. Substantially less home study will be required than in the standard sections. Registration in French 1af-2aw-3as is limited. Written permission must be obtained from Professor Sirich in Room 200 Folwell Hall.

† Students who have had three years of high school French may be admitted to French 20 with the consent of instructor.

** Students may enter any quarter with permission of instructor.

- 159s. Contemporary French Novel II. Social Problems Course conducted in French (3 cred.; jr., sr., grad.; prereq.††) VII MWF Fermaud
 171f-172w-173s.† History of French Language (3 cred.; jr., sr., grad.; prereq. one year of Latin or permission of instructor) Ar. Ar. Brackney

For Graduate Students Only

- 201f-202w-203s. Old French Phonology and Morphology (6 cred.) Ar. Ar. Brackney
 204f-205w-206s. Reading in Old French Literature (6 cred.) Ar. Ar. Brackney
 207f-208w-209s. Old Provencal (6 cred.) Ar. Ar. Brackney
 225f-226w-227s. French Seminar: Balzac (6 cred.) IX-X F Desgranges

ITALIAN

Junior College Courses

- 1f-2w.¶ Beginning Italian (8 cred.; no prereq.) IV MTWF Nissen
 3s. Intermediate Italian (4 cred.; prereq. 2 with grade of C) IV MTWF Nissen
 4f. Intermediate Italian (4 cred.; prereq. 3) IV MTWF Nissen
 5w.¶ Reading Knowledge of Italian (5 cred.; prereq. knowledge of French, Latin, or Spanish. No previous knowledge of Italian is necessary) VI MTWThF Nissen

Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 69f. Survey of Italian Literature I (3 cred.; jr., sr.; prereq.§) II MWF Nissen
 70. Survey of Italian Literature II (3 cred.; jr., sr.; prereq.§) (*Not offered*)
 71w. Modern Poetry (Leopardi, Carducci) (3 cred.; jr., sr.; prereq.§) II MWF Nissen
 72. Modern Drama (*Giacosa, Bracco, Pirandello*) (3 cred.; jr., sr.; prereq.§) (*Not offered*)
 73s. Boccaccio (3 cred.; jr., sr.; prereq.§) II MWF Nissen
 74. Petrarch (3 cred.; jr., sr.; prereq.§) (*Not offered*)
 159f-160w.** Dante (6 cred.; jr., sr., grad.; prereq. one course above 50) II TTh and IV Th Nissen
 161-162. *The Sixteenth Century* (6 cred.; jr., sr., grad.; prereq. one course above 50) (*Not offered*)
 164. *Dante in English* (3 cred.; jr., sr., grad.; prereq. consent of instructor). No previous knowledge of Italian is necessary (*Not offered*)

PORTUGUESE

- 1f-2w. Beginning Portuguese (10 cred.; no prereq.) VII MTWThF Luckey
 3s. Intermediate Portuguese (5 cred.; prereq. 1-2) VII MTWThF Luckey

SPANISH

Junior College Courses

- 1f-2w. Beginning Spanish (10 cred.; no prereq.; students submitting one year of high school Spanish for entrance must take Course 2; those offering two years must take Course 3) I MTWThF; IV MTWThF; VI MTWThF; VII MTWThF
 1w-2s. Beginning Spanish (See 1f-2w) III MTWThF; VII MTWThF
 1s. Beginning Spanish (First qtr. of 1-2. See 1f-2w) II MTWThF; VII MTWThF
 1af-2aw.* Beginning Spanish—Conversational Section (10 cred.; no prereq.) Demonstration II MTWThF plus one of the following laboratory drill sections: VI MTWThF; VIII MTWThF
 2f. Beginning Spanish (Second qtr. of 1-2. See 1f-2w) II MTWThF; VIII MTWThF

* The conversational method will be used in these sections. Substantially less home study will be required than in the standard sections. Registration in Spanish 1af-2aw-3as is limited. Written permission must be obtained from Professor Sirich in Room 200 Folwell Hall.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

§ The prerequisite is Course 3 or Course 4; but for students beginning Italian in the Senior College it may be Course 1-2 with permission of the instructor.

¶ Credit will not be given for both Course 1 and Course 5.

** Students may enter any quarter with permission of instructor.

†† Prerequisite is 70-71-72 or 73-74.

- 3f-4w. Intermediate Spanish (10 cred.; prereq. 1-2 or two years of high school Spanish. Students who have had three years of high school Spanish will omit Course 3 and take Course 4) II MTWThF; IV MTWThF; VI MTWThF
- 3w-4s. Intermediate Spanish (See 3f-4w) II MTWThF; VIII MTWThF
- 3s. Intermediate Spanish (First qtr. of 3-4. See 3f-4w) I MTWThF; IV MTWThF; VI MTWThF; VII MTWThF
- 3as. § Intermediate Spanish—Conversational Section (5 cred.; prereq. 1af-2aw) Demonstration II MTWThF plus laboratory drill as follows: VI MTWThF; VII MTWThF; VIII MTWThF
- 4f. Intermediate Spanish (Second qtr. of 3-4. See 3f-4w) II MTWThF; IV MTWThF; VI MTWThF
- 20f.w. Oral and Written Spanish (5 cred.; prereq. 4 or 4½ years of high school Spanish) III MTWThF
- 20s. Oral and Written Spanish (See 20f) III MTWThF; IV MTWThF

Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 52w. Spanish Pronunciation and Diction (Open only to candidates for the Spanish play; open to others with permission of instructor) (1 or 2 cred.; jr., sr.; prereq. 3-4) Ar. Ar. Cúneo
- 53f. Spanish Composition (3 cred.; jr., sr.; prereq. 3-4) II MWF Floripe; III MWF Mills
- 54w-55s. Spanish Conversation (6 cred.; jr., sr.; prereq. 53 or 20) II MWF Floripe; III MWF Mills
- 56s. Spanish Phonetics and Diction (4 cred.; jr., sr.; prereq. 20 or 53) Lect. IV TTh; lab. III-IV S Cúneo
- 57w,s. Commercial Spanish (5 cred.; jr., sr.; prereq. 20 or 53) VII MTWThF Cúneo
- 60f. Advanced Spanish Composition (3 cred.; jr., sr.; prereq. 53 or 20 with grade of B) III MWF Floripe
- 61w-62s. Advanced Spanish Conversation (6 cred.; jr., sr.; prereq. 54-55 or 20 with grade of B) III MWF Floripe
- 65f-66w-67s. Survey of the Literature of Spain (9 cred.; jr., sr.; prereq. 3-4) VI MWF Pattison
- 68w-69s. Survey of the Literature of Spain (10 cred.; jr., sr.; prereq. 3-4) VI MTWThF Grismer
- 70f-71w-72s. Latin-American Civilization and Culture (9 cred.; jr., sr.; prereq. 5 credits above 4 or permission of instructor) IV MWF Cúneo
- 74f-75w-76s. Survey of the Literature of Latin America (9 cred.; jr., sr.; prereq. 3-4) II MWF Shuler
- 77w-78s. Survey of the Literature of Latin America (10 cred.; jr., sr.; prereq. 3-4) VI MTWThF Luckey
- 103f-104w-105s. Spanish Syntax and Composition (3 cred.; jr., sr., grad.; prereq. 60 or registration in 60) IV T Pattison
- 110f-111w-112s. Spanish Literature: 19th Century (9 cred.; jr., sr., grad.; prereq.*) IV MWF Pattison
- 115-116-117. Spanish Literature: 17th Century (9 cred.; jr., sr., grad.; prereq.*) (Not offered)
120. The Ballad (3 cred.; jr., sr., grad.; prereq.*) (Not offered)
- 130f. Cervantes: Don Quijote (3 cred.; jr., sr., grad.; prereq.*) VIII MWF Grismer
131. The Picaresque Novel (3 cred.; jr., sr., grad.; prereq.*) (Not offered)
- 140f-141w-142s. Contemporary Latin-American Literature (9 cred.; jr., sr., grad.; prereq. a survey of the literature of Spain or Latin America) VIII MWF Irving
- 143f-144w-145s. Colonial and 19th Century Latin-American Literature (9 cred.; jr., sr., grad.; prereq. a survey of the Literature of Spain or Latin America) VII MWF Floripe
- 155f-156w-157s. Spanish Literature: 16th Century (9 cred.; jr., sr., grad.; prereq.*) VII MWF Grismer
- 171-172-173. History of the Spanish Language (3 cred.; jr., sr., grad.; prereq. 4 and 1 yr. of Latin or permission of instructor) (Not offered)
- 174-175-176. Contemporary Spanish Literature (9 cred.; jr., sr., grad.; prereq.*) (Not offered)

For Graduate Students Only

- 241f-242w-243s. Old Spanish Philology (6 cred.) IX-X F Grismer
- 244-245-246. Readings in Old Spanish Literature (6 cred.) (Not offered)
- 247f-248w-249s. Hispano-Arabic Culture (6 cred.) Ar. Ar. Irving
- 250f-251w-252s. Spanish Seminar (6 cred.) VIII-IX W Pattison
- 253f-254w-255s. Seminar in Latin-American Literature (6 cred.) Ar. Ar.

* The prerequisite is 65-66-67 or 68-69.

§ The conversational method will be used in these sections. Substantially less home study will be required than in the standard sections. Registration in Spanish 1af-2aw-3as is limited. Written permission must be obtained from Professor Sirich in Room 200 Folwell Hall.

¶ Students who have had three years of high school Spanish may be admitted to Course 20 with the consent of the department.

RUSSIAN

Junior College Courses

- 1f-2w. Beginning Russian (10 cred.; no prereq.) VII MTWThF Niemi
 3s. Intermediate Russian (5 cred.; prereq. 1-2) VII MTWThF Niemi

Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses.

- 51f-52w-53s. Advanced Russian (9 cred.; jr., sr.; prereq. 3) VI MWF Blinoff
 56f-57w-58s. Russian Conversation (9 cred.; jr., sr.; prereq. 3) VII MWF Blinoff
 61f-62w-63s. Russian Composition (6 cred.; jr., sr.; prereq. 3) VI TTh Niemi
 71f-72w-73s. Rapid Reading of Russian Literature. Selected readings of modern Russian prose, with the aim of attaining facility in reading (9 cred.; jr., sr.; prereq. 51-52-53 or consent of instructor) VIII MWF Niemi
 81-82-83. *Reading of Non-literary Russian Texts* (9 cred.; jr., sr.; prereq. 51-52-53 or consent of instructor) (*Not offered*)
 101f-102w-103s. § Survey of Russian Literature. 101: Pushkin, Lermontov, Gogol, Turgenev; 102: Dostoevski and Tolstoy; 103: The Period from 1880 (9 cred.; jr., sr., grad.; prereq. 8 credits in literature) V MWF Niemi
 131-132-133. *From Pushkin to Tolstoy—Advanced Interpretation* (9 cred.; jr., sr., grad.; prereq. 71-72-73 or consent of instructor) (*Not offered*)

SCANDINAVIAN

Major adviser in the College of Science, Literature, and the Arts—Associate Professor Gustafson.

Major sequence in the College of Science, Literature, and the Arts—Courses 51-52, 61 or 71, 161 or 162, 171, 172, 191-192-193 and five additional credits numbered 51 and above.

Junior College Courses

- 1f-2w. Beginning Norwegian (10 cred.; no prereq.) VI MTWThF Clausen
 3s. Intermediate Norwegian (5 cred.; prereq. 1-2 or equiv.) VI MTWThF Clausen
 4f-5w-6s. Advanced Norwegian (9 cred.; prereq. 1-2-3 or equiv.) VII MWF Ar.
 7f-8w. Beginning Swedish (10 cred.; no prereq.) II MTWThF Lorenzen
 9s. Intermediate Swedish (5 cred.; prereq. 7-8 or equiv.) II MTWThF Lorenzen
 10f-11w-12s. Advanced Swedish (9 cred.; prereq. 7-8-9 or equiv.) III MWF Lorenzen
 22w-23s. § *Scandinavian Life Today and Yesterday*. A descriptive survey of present-day Scandinavian life and culture, with some attention paid to historical origins but with primary emphasis being placed upon twentieth-century developments in political and economic democracy and social reform, in architecture and painting, in music, literature, and the home crafts (6 cred.; no prereq.) V MWF Gustafson and staff with lectures by Blegen, Steefel, Stephenson, and others

Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 51f. § *Scandinavian Literature in the 19th Century*. A survey of Danish, Norwegian, and Swedish literature from the Romantic Movement and mid-nineteenth-century idealistic realism to the realistic and naturalistic break-through in the drama and prose fiction of the 1870's and 1880's (2 cred.; jr., sr.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) Ar. Ar. Gustafson
 52w. § *Contemporary Scandinavian Literature*. A rapid sketch of characteristic trends in the Scandinavian literature of the last half century, especially as reflected in lyric poetry, the short story, and representative autobiographical works (2 cred.; jr., sr.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) Ar. Ar. Gustafson

§ No knowledge of Scandinavian languages is required.

¶ No knowledge of the Russian language is required.

- 61s. Norwegian Conversation. Practice in conversation employing the common Norwegian vocabulary and idiom of today and based on material drawn from present-day Norwegian life (3 cred.; jr., sr.; prereq. 1-2-3 or equiv.) Ar. Ar. Clausen
- 71s. Swedish Conversation. Practice in conversational Swedish of today with subject matter drawn from immediate everyday material from present-day Swedish life (3 cred.; jr., sr.; prereq. 10-11-12 or equiv.) Ar. Ar. Lorenzen
- German 113f-114w. Gothic (6 cred.; sr. with completed major sequence, grad.) Ar. Ar. Downs
- 153s. The Modern Scandinavian Home as an Expression of Northern Art (3 cred.; jr., sr., grad.) Ar. Ar. Lien
- 161.§ *The Scandinavian Novel I.* The late nineteenth century. An examination of "the great tradition" in the modern Scandinavian novel, together with the circumstances, intellectual and political, social and economic, out of which it grew (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) (*Not offered. Offered in 1949-50*)
- 162.§ *The Scandinavian Novel II.* Contemporary trends. A study of characteristic trends in Scandinavian life and thought in the twentieth century as expressed in the prose fiction of Sigrid Undset, Johannes V. Jensen, Olav Dunn, Hjalmar Bergman, Pär Lagerkvist and others (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) (*Not offered. Offered in 1949-50*)
- 171f.§ Ibsen and the Beginnings of the Modern Drama. An intensive examination of the plays of Ibsen, especially with reference to the role he has played as "the founder" of the modern European drama (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) IV MWF Gustafson
- 172w.§ Strindberg and the Drama in Revolt and Transition. A study of Strindberg as master of the naturalistic drama and as "the father of modernity" in the European and American theater since his day (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) IV MWF Gustafson
- 173s.§ The Contemporary Scandinavian Theater. An examination of the Scandinavian theater of today, particularly with reference to its "experimental" trends both in dramatic composition and staging (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) IV MWF Gustafson
- German 176-177. *Problems and Research Trends in Germanic Philology* (6 cred.; sr., grad.; prereq. at least two Germanic dialects)
176. *The Germanic Languages* (3 cred.) (*Not offered*)
177. *The Germanic Literary Tradition.* A comparative discussion of the native and foreign records of the Old Germanic period (3 cred.) (*Not offered*)
- German 183.§ *Germanic Heroic Poetry* (3 cred.; sr., grad.; prereq. 8 cred. in literature) (*Not offered*)
185. *History of the Scandinavian Languages* (3 cred.; sr., grad.; prereq. 4-5-6 or 10-11-12 or at least one Germanic language) (*Not offered*)
- 191f-192w-193s. Readings in the Scandinavian Literatures. Intensive reading of representative Scandinavian texts. Designed especially for majors and minors in Scandinavian, each student fulfilling his reading requirements in Danish or Norwegian or Swedish depending upon his language of primary interest (3 cred. per qtr.; prereq. 4-5-6 or 10-11-12) Ar. Ar. Gustafson
195. *Introduction to Old Norse Language and Literature.* Old Norse phonology and morphology. Survey of Old Icelandic history and literature (4 cred.; sr., grad.; prereq. 113) (*Not offered*)

For Graduate Students Only

- 215-216-217. *Studies in Scandinavian Romanticism* (*Not offered. Offered in 1949-50*)
- 218f-219w-220s. Studies in Late Nineteenth-Century Scandinavian Literature. Ar. Ar. Gustafson
- German 218-219-220. *Seminar: Germanic Languages and Literature* (9 cred.; prereq. at least two Germanic dialects) Texts in Germanic dialects, runic inscriptions (*Not offered*)
- 221f-222w-223s. Biographical Problems in Strindberg. Ar. Ar. Gustafson

SECRETARIAL TRAINING

See Economics, page 49.

SOCIAL SCIENCE

See General Studies, page 64.

§ No knowledge of Scandinavian languages is required.

SOCIOLOGY AND SOCIAL WORK

Major advisers in the College of Science, Literature, and the Arts—Professors Chapin, Fenlason, Kirkpatrick, Monachesi, Nelson, and Vold; Associate Professors Doyle, Kidneigh, Mueller, Shea; Assistant Professors Caplow, Guilford, Konopka, Marshall, and Scott; Instructor Kyllonen.

Major sequences in the College of Science, Literature, and the Arts—**Group I**—General Sociology Sequences—

Sequence A. Sociological principles. Courses 120, 122, 140, 170, 171, 172 and 10 additional credits elected from other courses numbered 100 and above.

Sequence B. Sociological Orientation to the Modern World. Courses 50, 53, 120, 140, 141, 170 and 10 additional credits elected from other courses numbered 100 and above.

Group II—Sequences with Vocational Emphasis—

Sequence C. Criminology and Penology. Course as follows: 50, 53, 100, 101, 104 or 102, 103 and 10 additional credits.

Sequence D. An interdepartmental sequence recommended as preparation for graduate study in the School of Social Work. It may be taken as a substitute for the major and minor sequences required for the B.A. degree. Courses 50, 51, 53, 91, 140, 141, 162; three Senior College courses in Sociology numbered 100 or above in addition to those specifically required; Economics 82, 83 (unless the student has had Economics 6-7, Principles of Economics, or its equivalent); Psychology 144-145; Philosophy 70 or Soc. 172; at least six credits in Senior College courses in history or political science; two Senior College courses in public health.

(Prerequisites: For Sequence D, Sociology 1, 45, 49; Political Science 1-2; Psychology 1-2.)

In Art and Physical Education 18 credits are recommended for students taking this major sequence D. They may elect, and get credit for, Physical Education for Women 60 and the following courses in Physical Education for Men. The remaining courses listed below are regularly open to students in the College of Science, Literature, and the Arts.

Art

43,44,45. General Crafts: Materials and Techniques

93,94,95. Ceramics I

Physical Education for Women

54. Camp Leadership

60. Principles of Play

80. Principles of Rhythm

Physical Education for Men

58. Introduction to Community Recreation

110E-111E-112E. Community Recreation Planning, Management, and Supervision

116E. Community Recreation Resources and Organization

The privilege of taking these courses, which are not regularly open to students in this college, is primarily for those preparing for graduate training in group work directed to leadership in recreation.

Education for social work is on three levels: (1) undergraduate study, which includes social sciences and some courses of primarily informational nature dealing directly with social work; (2) one year of graduate social work study which includes technical theory courses in social work and field work practice; (3) a second year of graduate study devoted to specialization in a particular field of social work, advanced field work practice and research. The undergraduate level of study prepares for some beginning positions in social work. Training at the graduate level opens opportunities for work with professional recognition. For full information regarding graduate professional preparation for social work, see the *Bulletin of the Graduate School* and the special *Bulletin of the School of Social Work*.

Sequence E. Social Administration, with emphasis on leadership and planning. Courses 50, 51, 53, 91, 106, 140; one from 141, 160, 162; 111, 112, 115, and 4 additional credits elected from other courses numbered 100 or above.

Sequence F. Social Research. Courses 181, 182 or equivalent, 180, 183, 184-185-186, and 13 additional credits elected from other courses numbered 100 or above.

(Prerequisites: For Sequences A, B, C, E, and F, Soc. 1 and 45, and a total of 15 credits from courses in sociology, anthropology, education, history, philosophy, political science, psychology, and zoology.)

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major adviser in the College of Education—Professor Kirkpatrick.

Requirements for a teacher's certificate—Major recommendation: 36 credits including 1, 2, and 14.

Minor recommendation: 19 or 20 credits including 1, 2, and 14.

Note—Students majoring in sociology must complete two teaching minors in addition to the required professional courses. Teachers who already hold a teacher's certificate may be relieved of this requirement upon petition.

For a specialized curriculum in social studies and a curriculum for "Visiting Teachers" see the *Bulletin of the College of Education*.

Honors course—Students interested in the work of an honors course should consult the chairman of the department.

Junior College Courses

- 1f,w,s. Introduction to Sociology. A study of the characteristics of human group life. An analysis of the factors associated with the development of human group life and man's social environment; the structure of the social environment and its influence upon the individual's behavior (5 cred.; no prereq.) Lect. II TThS Monachesi and others; lab. sections as follows: I WF; II MW; IV MW; VI MW; VII MW; III TTh
- 1f,w. Introduction to Sociology (For students of the College of Agriculture, Forestry, and Home Economics only) (3 cred.; no prereq.) III TThS Ar.
- 1s. Introduction to Sociology (For students of the College of Agriculture, Forestry, and Home Economics only) (See 1f,w) I TThS Ar.
- 2f,w,s. Intermediate Sociology. The influence of social interaction on personality and personality adjustment with special reference to the family. The role of attitude and prejudice in relation to racial and other minority groups. Forms of social opposition including competition, class tension, and warfare (5 cred.; prereq. 1) Lect. I TThS Caplow; lab. sections as follows: I WF; II TTh; IV MW; VI TTh
- 7s. Urban Sociology (3 cred.; prereq. 1) III TThS Caplow
- 14w,s. Rural Sociology. A presentation of factual data necessary to an understanding of the problems of rural social life (3 cred.; prereq. 1) IV MWF Nelson, Marshall
- 14f,w. Rural Sociology (For students of the College of Agriculture, Forestry, and Home Economics) (3 cred.; prereq. 1) IV TThS Nelson, Marshall
- 45f,w,s. Social Statistics. An introduction to statistical methods employed in analyses of social data including methods of measuring central tendency, dispersion, significance of differences, and correlation (5 cred.; prereq. 1. Not open to students who have received credit in Econ. 5) Lect. IV MWF ar.; lab. sections as follows: VI-VII MW; VI-VII TTh
- 49f,s. Social Problems. A survey course in contemporary social problems with especial emphasis on personal demoralization and social disorganization (3 cred.; prereq. 1) I MWF Kyllonen; II TThS Kyllonen
- 49w. Social Problems (See 49f,s) II MWF Kyllonen; II TThS Kyllonen

Senior College Courses

COURSES IN SOCIOLOGY

Course 53 is open to third quarter sophomores who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to

Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 50f-51w. Areas of Social Work. A survey of social work agencies, their purposes and functions, with consideration of areas of social need within which social work agencies operate (4 cred. each qtr. for Sequence D students; 3 cred. other students; jr., sr.; prereq. 49) III TThS and 3 hrs. of observation for Sequence D students
- 50w-51s. Areas of Social Work (See 50f-51w) II TThS and 3 hrs. of observation for Sequence D students
- 53f,w,s. Elements of Criminology. A general survey of the field of criminology (3 cred.; jr., sr.; prereq. same as for 49) III MWF Vold
57. *Leisure in the Modern World* (3 cred.; open only to students in the College of Education; prereq. Soc. 1 or equiv.) (*Not offered*)
- 91f. Case Method Applied to the Study of Human Problems. The general application of the interviewing method for students who plan to work professionally in fields involving human relationships, such as Social Work, Public Health Nursing, Speech Pathology, etc. (3 cred.; jr., sr.; prereq. 50 or 51 or consent of major adviser) II TThS Ar.
- 91s. Case Method Applied to the Study of Human Problems (See 91f) III TThS Ar.
95. *Introduction to Public Welfare*. The public welfare function of American government with especial emphasis on the social security programs (3 cred.; jr., sr.; prereq. 50 or 51 or consent of major adviser (*Not offered*))
- 97f-98w-99s. Tutorial and Honors Work in Selected Fields (9 cred.; jr., sr.; prereq. consent of major adviser in sociology) Ar. Ar. Ar.

I. SOCIAL PROBLEMS AND SOCIAL POLICY

- 100s. Contemporary Penology. An analysis of some of the more important developments in recent attempts at the treatment of criminals and the prevention of crime (3 cred.; jr., sr., grad.; prereq. 1, 53 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II MWF Vold
- 101f. Criminological Theories—Historical and Contemporary. A consideration and an evaluation of the major historical and contemporary theories of criminal behavior (3 cred.; jr., sr., grad.; prereq. 1, 53 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) IV MWF Vold
- 102w. Adult Parole and Probation. A critical examination of problems and practices in the supervision of adult criminals (3 cred.; jr., sr., grad.; prereq. 1, 53 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) VII MWF Vold
- 103s. Juvenile Courts and Probation. The historical, legal, and social aspects of juvenile courts and probation. A critical survey of juvenile courts and probation work based upon a consideration of the nature of delinquent behavior—its "causes," its modification, and its prevention (3 cred.; jr., sr., grad.; prereq. 53) III TThS Monachesi
104. *Police Problems and Practices in the United States*. A study of personnel, organization, and public relations of police forces with special attention to successful techniques of integrating police work with other community agencies. (3 cred.; jr., sr., grad.; prereq. 1, 53 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) (*Not offered*)
- 106f. City Planning. General survey of the economic, governmental, social, and technical phases of city planning and group housing (The same as Architecture 104, Economics 111, and Political Science 123) (3 cred.; jr., sr., grad.; no prereq.) III MWF Jones, Anderson, Caplow, Filipetti, Vaile
- 111w. Population Trends. This is a course emphasizing the cultural and social phases of population change as it is related to the institutional aspects of both rural and urban life. Population policy will be discussed with particular reference to the United States. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) VII MWF Marshall
- 112s. Population Policy. (3 cred.; sr., grad.; prereq. 111) III MWF Ar.
- 115w. Social Aspects of Housing and Standards of Living. An analysis of the housing of the masses in relation to the problems arising in urban overcrowding, population distribution, and standard of living as affected by the distribution of national income, and the factors related to personal and social disorganization (3 cred.; sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II TThS Caplow

II. SOCIAL PSYCHOLOGY AND SOCIAL PROCESSES

- 120f. Social Psychology (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) I TThS Kirkpatrick

- 120w. Social Psychology (See 120f) II TThS Kirkpatrick
- 122w. Sociology of Conflict. Manifest forms of antagonism among groups of persons; causes of conflict; methods of resolving through accommodation; the role of conflict and social change (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II MWF Vold
- 123f,s. Interaction of Racial and Cultural Groups in America. Processes leading to group contact; characteristics and contributions of ethnic groups in the United States; mechanisms and problems of group adjustment. Democratic theory and practice; sources of prejudice; contemporary status of principal minority groups; international implications; trends and proposed solutions (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II TThS Kirkpatrick

III. SOCIAL ORGANIZATION AND SOCIAL INSTITUTIONS

- 140w,s. Social Organization. The organization and structure of social groups; basic culture patterns of economic, political, and social institutions. Integration and disintegration of social groups and institutions. Essentials of social dynamics (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II TThS Chapin
- 141f,w,s. The Family. The evolution of the family: development of family unity or disunity, the roles of the several members of the family, methods of investigation of the family (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) IV TThS Kirkpatrick
142. *Religion as a Social Institution* (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) (*Not offered*)
143. *The Newspaper as a Social Institution*. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) (*Not offered*)

IV. RURAL LIFE AND WELFARE

- 160f. Rural Community Organization. A study of the historical evolution, ecological characteristics and demography of the rural community; the social processes, stratification, assimilation, conflict, and cooperation as manifested in rural society (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology or consent of instructor) I MWF Nelson
- 161s. Rural Community Analysis. Course intended primarily for prospective rural teachers and extension workers. Emphasis will be placed on methods of making field studies of communities. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, and consent of instructor) VI T and VI-VII Th Marshall
- 162w. Rural Social Institutions. Factors in the rural environment which condition the functioning of rural social institutions, including the family, school, church, local government, health and welfare (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology or consent of instructor) I MWF Nelson

V. THEORIES OF SOCIAL CHANGE AND SOCIAL ORDER

- 170f. Social Life and Cultural Change. The theory of cultural lag. The idea of progress. The genesis of the unilinear conception of change and its implications for sociological theory (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) III MWF Ar.
- 171w. Theories of Social Order. A survey of the leading theories of social organization in the European tradition, including the theory of hierarchy of estates and the doctrine of harmony of interests; the theory of the contract of society and equilibrium of interests; and the realist or conflict theory. Christianity and social order (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) IV MWF Ar.
- 172s. Theories of Social Reconstruction. American reformers and reform movements from the 1830's to the present. Societies of cooperation and religious communisms in the United States. The muckrakers. The effects of war behavior on social reconstruction and reform movements. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) III TThS Ar.

VI. RESEARCH METHODS AND TECHNIQUES

- 180f. Methods of Social Research. A survey of the major methods employed in social research including a consideration of their advantages and limitations when applied to specific types of research problems. (3 cred.; jr., sr., grad.; prereq. 45 or equiv.) III TThS Ar.

- 181s. Problems in Rural Social Research. A survey of methods currently used by students in investigating rural society; class reports on recent samples of rural research (2 cred.; sr., grad.; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) VIII-IX M Nelson
- 182f. Statistical Methods. Selected problems of social relationship described, analyzed, and interpreted by means of the common statistical methods (3 cred.; grad.*; prereq. 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II TThS Chapin
- 183w. Problems in Social Measurement. A theoretical analysis of problems involved in measuring social variables, including a consideration of problems of reliability, validity, and standardization in the construction of new measuring instruments (3 cred.; jr., sr., grad.; prereq. 45 or 182 or equiv.) III MWF Ar.
- 184f-185w-186s. Field Work and Laboratory Training in Social Research. Open to students whose records in statistical and research courses indicate ability to carry on individual research projects to advantage under supervision. (6 cred.; jr., sr., grad.; prereq. 45 or 182 which may be taken simultaneously) Ar. Ar. Ar.

VII. SEMINAR COURSES

For Graduate Students Only

- 200f,w,s. Seminar: Research Problems in Criminology. Vold
201. Seminar: Social Psychology of Family Relationships. Ar.
202. Seminar: Topics in Urban Sociology. Caplow
- 203f-204w-205s. Seminar in Social Theory. Ar.
- 206f-207w-208s. Seminar: Statistical Theory in Relation to Social Theory and Practice. Chapin
- 209f-210w-211s. Seminar: Problems in Population Research. Ar.
- 215f. Seminar in Rural Sociology: Rural Life in Latin America. Nelson
- 216w. Seminar in Rural Sociology: Rural Life in Selected Countries of Europe. Nelson
- 217s. Seminar in Rural Sociology: Current Rural Social Problems in the United States. Nelson
- 234f,w,s. Seminar in Juvenile Delinquency and Treatment. Monachesi
- 238f-239w† Principles of Sociology (6 cred.) Monachesi

COURSES IN SOCIAL WORK

I. GENERAL SOCIAL WORK COURSES

- S.W.200f,s. The Field of Social Work. A study of the field of social work, including fields of specialization, functions of agencies, and contributions made by outstanding leaders (3 cred.; no prereq.) III TThS Doyle
- S.W.201w. The History and Theory of Social Work. A consideration of the historical backgrounds of the modern social work movement and the evolution of the theory underlying it (3 cred. no prereq.) III TThS Doyle
- S.W.205f,206w,207s. Special Topics in Social Work (Cred. ar.) Ar. Ar. Staff
- S.W.209f,w,s. Seminar in Social Agencies and Institutions (Cred. ar.) Ar. Ar. Doyle

II. FIELD WORK COURSES

- S.W.210f,s†-211w†-212f,s.† Initial Field Training in Social Work. Field practice in social work process under direct supervision (Cred. ar.; prereq. 220 or 282A which may be taken simultaneously, or equiv.) Ar. MWF Staff
- S.W.215f,w,s†-216f,w,s†-217f,w,s.† Advanced Field Training in Social Work. Field practice in social work process under direct supervision (Cred. ar.; prereq. 221 or 282B) Ar. Ar. Staff
- S.W.219f,w,s. Seminar for Field Training Supervisors (Cred. ar.; limited to persons engaged in supervising students in field work) IX-X Th Staff

III. CASE WORK

- S.W.220f. Case Work I. A study of the generic processes in social case work practice and an approach to understanding the individual in the social situation with some exercises in the process of case analysis (3 cred.; prereq. 200 or equiv. and 210 which must be taken simultaneously) III TThS Scott; IV TThS Scott
- S.W.220s. Case Work I (See 220f) IV TThS Scott

* For graduate students only except by petition.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$3.50 per quarter is charged for this course.

- S.W.221w. Case Work II. A continuation of Case Work I emphasizing a critical analysis of the case work process and development of skills in case work method (3 cred.; prereq. 220 and 236 or equiv. plus 211 which must be taken simultaneously) III TThS Scott; IV TThS Scott
- S.W.222w. Advanced Family Case Work. Case discussion focused primarily on treatment processes (3 cred.; prereq. 221 or equiv.) III TThS Fenlason
- S.W.224. *Seminar in Case Work in the Public Agency* (Cred. ar.; prereq. 221 or consent of instructor) (*Not offered*)
- S.W.225w,s. Seminar in Family Case Work (Cred. ar.; prereq. 221 or consent of instructor) IX-X T Fenlason
- S.W.226f,w. Seminar in Case Work in Health Problems (Cred. ar.; prereq. 221 or consent of instructor) IX-X Th Mueller
- S.W.227f,s. Seminar in Case Work in the Psychiatric Setting (Cred. ar.; prereq. 221 and 215-216-217 which must be taken simultaneously) VII-VIII Th Shea
- S.W.227w. Seminar in Case Work in the Psychiatric Setting (See 227f,s) V-VI Th Shea
- S.W.228f. Seminar in Social Case Recording (Cred. ar.) IX-X T Fenlason
- S.W.229f,s. Seminar in Case Work Supervision (Cred. ar.; prereq. 222 or 230 or 251 or 261) VI-VII T Fenlason

IV. PSYCHIATRIC AND PSYCHOLOGICAL COURSES

- C.W.140f. Behavior Problems in Younger Children (2 cred.; prereq. 12 cred. in psy., ed. psy., or soc.) III-IV S Blodgett
- C.W.140w. Behavior Problems in Younger Children (See C.W. 140) VIII-IX Th Blodgett
- C.W.141w. Behavior Problems in Older Children (2 cred.; prereq. 12 cred. in psy., ed. psy., or soc.) III-IV S Blodgett
- C.W.141s. Behavior Problems in Older Children (See C.W. 141) VIII-IX Th Blodgett
- C.W.190f. Use and Interpretation of Tests for Children (2 cred.; prereq. 12 cred. in psy., ed. psy., or soc.) III TTh Roff
- Neuropsychiatry 171w. Descriptive Neuropsychiatry. A study of the general plan of the nervous system and its functions; a consideration of some of the more common functional and nervous system diseases (3 cred.; prereq. S.W. 235 or equiv.) VII-VIII TTh Ar.
- Neuropsychiatry 172. *Advanced Considerations in Psychiatry*. A case discussion course designed to give the advanced student an opportunity to study and discuss cause and effect relationships in human behavior; the approach and methods of treating maladjusted individuals; society's provision for their study and care (1 cred.; prereq. Neuro. 171 or equiv.) (*Not offered*)
- Psy. 114w. Human Behavior (3 cred.; prereq. Psy. 1-2; 4-5 or Zool. 1-2-3, or Phil. 1) II TThS Elliott
- Psy.171w-172s. Introduction to Clinical Psychology (6 cred.; prereq. Psy. 144, either Psy. 125 or Ed.Psy. 120 or 5 credits in statistics and 6 additional credits in psy. or child welfare, or ed. psy.) VI MWF Meehl
- S.W.230f,s. Psychiatric Social Case Work. Case discussion focused on the function of the social worker in the psychiatric setting with emphasis on diagnosis and treatment of the emotionally disturbed (3 cred.; prereq. 221 or equiv.) II TThS Shea
- S.W.235f. Introductory Psychiatry. A lecture course, the subject matter of which includes a discussion of: mental hygiene, mental mechanisms; psychiatric history taking; review of schools of psychiatry; classification of mental diseases (3 cred.; no prereq.) II TThS Hinckley
- S.W.236f. Personality Development As It Affects Social Case Work. A consideration of factors involved in personality development and how these factors aid case work practice (2 cred.; prereq. 220) VI-VII T Ar.
- S.W.239s. Seminar in Psychiatric Social Work (2 cred.; prereq. 230, 235, and 236) Ar. Ar. Hinckley
- S.W.240. *Dynamics of Human Behavior Based on Psychoanalytic Theory* (3 cred.; prereq. 235) (*Not offered*)

V. MEDICAL COURSES

- S.W.250s. Medical Information for Social Workers. A discussion of diseases most often encountered in social work, with a consideration of their social implications (3 cred.; prereq. P.H. 50 or 51 or equiv.) IX T and VIII-IX Th Mueller and Medical staff
- S.W.251f-252w-253s. Advanced Medical Social Work. Case work function of the social worker in medical programs with an analysis of cases demonstrating the social problems associated with illness and disability (9 cred.; prereq. 221 or equiv. and 215, 216, 217 which must be taken simultaneously) III TThS Mueller
- P.H.106w. Public Health Administration (3 cred.; prereq. P.H. 53 or equiv.) I TThS Anderson
- P.H.108w. Care of the Handicapped Child (2 cred.; prereq. P.H. 53, P.H. 57, P.H. 58, or P.H. 100, or permission of instructor) VI TThS Ar.
- P.H.141s. Social and Economic Aspects of Medical Care (3 cred.; prereq. P.H. 106) IV TThS Weaver
- S.W.259f,w,s. Seminar in Medical Social Work (Cred. ar.; prereq. 221 and 251-252-253 which may be taken simultaneously) VI-VII Th Mueller

VI. CHILD WELFARE COURSES

- Soc.103s. Juvenile Courts and Probation (3 cred.; prereq. Soc. 53 or consent of instructor) III TThS Monachesj
- Soc.234f,w,s. Seminar in Juvenile Delinquency and Treatment (Cred. ar.) Ar. Ar. Monachesj
- S.W.260w. The Child and the State. Development of the rights of the child in relation to parental rights as evidenced in child labor laws, the juvenile courts, adoption, aid to dependent children, the changing status of the illegitimate child, and public organization for more effective administration of laws relating to child dependency, delinquency, and neglect (3 cred.; prereq. 200 or equiv.) IV TThS Guilford
- S.W.261f,s. Problems in Children's Case Work. This course deals with substitute parental care. Principles and methods of child placement, including adoption, selection of foster home or institution, are considered. Case materials reflecting current theories and practices are used throughout the course (3 cred.; prereq. 211 and 221) IV TThS Guilford
- S.W.262s. Principles of School Social Work. Case work function of social worker in public school programs with discussion of the kinds of cases and problems encountered by the visiting teacher (2 cred.; prereq. 221) IX-X T Laabs
- S.W.266w,s. Seminar in Child Welfare (Cred. ar.) IX-X Th Guilford

VII. PUBLIC WELFARE COURSES

- Pol.Sci.124w-125s. Recent Social Legislation (6 cred.; prereq. 6 cred. in political science or consent of instructor) VII MWF Christensen
- S.W.267f,s. Public Welfare I. Historical development and existing functions of present-day public welfare services (3 cred.; prereq. 200 or equiv.) I TThS Guilford
- S.W.268w. Public Welfare II. Continuation of Public Welfare I (3 cred.; prereq. 267) I TThS Guilford
- S.W.269f,w,s. Seminar in Public Welfare Administration (Cred. ar.; prereq. 268) IX-X F Kidneigh

VIII. SOCIAL ADMINISTRATION AND COMMUNITY ORGANIZATION

- Journ.150s. Public Relations in Community Service (2 cred.; prereq. consent of major adviser and director of School of Journalism) VIII-IX Th Emery
- Soc.115w. Social Aspects of Housing and Standards of Living (3 cred.; prereq. Sociology 1 and 15 credits in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II TThS Chapin
- Soc.160f. Rural Community Organization (3 cred.; prereq. consent of instructor) I MWF Nelson
- S.W.275w. Principles of Administration Applied to Social Work. A technical study of methods of planning, organizing and directing social agencies and of making the public aware of their work (3 cred.; prereq. 200 or equiv.) I TThS Kidneigh
- S.W.276f. Legal Aspects of Social Work. Legal information for social workers to furnish background for understanding social problems having legal implications with reference to the court system; legal process; legal rights of recipients. Not designed to teach technical law (3 cred.; prereq. 200 or equiv.) I TThS Adelsheim
- S.W.279s. Seminar in Administration and Community Organization (Cred. ar.; prereq. 275 and 280) IX-X M Kidneigh
- S.W.280f,s. Community Organization. An analysis of the process by which groups and individuals within a community work together toward a social goal and the professional workers' role in this process (3 cred.; prereq. 200 and 282, or consent of instructor) I TThS Kidneigh

IX. GROUP WORK COURSES

- S.W.282Af,s. Principles of Group Work I. A general introduction to the philosophy of social group work, its place in the community, understanding of the needs of individuals in groups, the group work process and its use in various fields, as recreation, hospital and psychiatric settings. Special emphasis on case work-group work relations and the referral process (3 cred.; prereq. 200 or equiv. and 210 which may be taken simultaneously, or equiv.) IV TThS Konopka
- S.W.282Bw. Principles of Group Work II. Understanding of the group process, formation of groups, the role of the group worker in relation to different kinds of groups, and the effect of social forces in the community on group behavior. Teaching of record writing, use of face sheet material (2 cred.; prereq. S.W. 211 plus 282A and 236 which may be taken simultaneously, or equiv.) II-III T Konopka
- S.W.283w. Use of Program in Groups I. Understanding of program as a tool in meeting the needs of the individual in the group and of the community. Understanding the value of specific program in relation to needs. Teaching skill in planning and executing program activities (2 cred.; prereq. S.W. 282A) II-III Th Konopka

- S.W.284s. Use of Program in Groups II. Continuation of 283 with special emphasis on the teaching of principles and practice of the discussion method. (1 cred.; prereq. S.W. 282A) II T Konopka
- S.W.285s. Group Work III. Intensified understanding of the individual in the group. Analysis of record material taken from normal and therapeutic groups including referral process (2 cred.; prereq. S.W. 282B) II-III Th Konopka
- S.W.286f. Therapeutic Group Work. Group work in a psychiatric setting. Work with individuals in a group for therapeutic purposes. Understanding of the role of the worker. Therapeutic grouping. A discussion of literature on group therapy (2 cred.; prereq. S.W. 285 or 220 or 222 or 251 or 261) IX-X M Konopka
- S.W.287w. Supervision and Administration in Group Work I. Principles and practice of administrative supervision, departmental planning, financing, budgeting, work with board, staff and volunteers. Use of supervisory records (2 cred.; prereq. S.W. 285) VI-VII T Konopka
- S.W.288s. Supervision and Administration in Group Work II. Principles of relationship and responsibility of the professional group worker toward the field of social work, related fields and the wider community. Methods to carry out this responsibility (2 cred.; prereq. S.W. 287) VI-VII T Konopka
- S.W.289f,w,s. Seminar in Group Work (Cred. ar.) VI-VII Th Konopka

X. RESEARCH COURSES

- Soc.180f. Methods of Social Research (3 cred.; prereq. Soc. 45 or 182 or equiv.) III TThs Ar.
- Soc.182f. Statistical Methods (3 cred.; prereq. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) II TThs Chapin
- Soc.183w. Problems in Social Measurement (3 cred.; prereq. Soc. 45 or 182 or equiv.) III MWF Ar.
- S.W.293f,w,s. Special Studies in Social Work (Cred. ar.; fulfills 9 cred. requirement plan B) Ar. Ar.
- S.W.299w,s. Seminar in Recent Research in Social Work (Cred. ar.) IX-X Th Monachesi
- S.W.300f,w,s. General Seminar in Social Work (Cred. ar.) Ar. Ar. Staff

SPANISH

See Romance Languages, page 117.

SPEECH

Major advisers in the College of Science, Literature, and the Arts—Professors Bryngelson, and Gilkinson; Associate Professors Henrikson and Whiting; Assistant Professors Howell, Irwin, Thompson.

Major sequences in the College of Science, Literature, and the Arts—

A. General: Courses 51, 61, 65, 67 or 142, 71, 81, 85, 106, 169 and 9 additional senior college credits in one of the following exclusive of the minor department: Economics, English, History, Humanities, Philosophy, or Political Science.

B. Theater: Courses 61; 81-82-83; 91, 92, 93; 111-112-113 and a comprehensive examination in the theater.

C. Public Speaking and Discussion: Courses 55-56-57, 61; 67; 101-102-103, 106, 126, 143.

D. Radio: Courses 65, 66, 67; 78-79; 81-82-83, 117, 143.

(Prerequisites: 1-2-3 or 5-6; Psychology 1-2. For Sequence B, Speech 31, 32-33, 34 are required.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Major advisers in the College of Education—Professors Bryngelson and Gilkinson; Associate Professor Whiting.

Requirements for a teacher's certificate—Major recommendation: Speech 1-2 or 5, 31, 32, 61, 67, 71-72-73, 81-82, 85, 101-102; total 41 or 42 credits. Psychology 4-5 is advised.*

* Students majoring in speech in the College of Education may substitute 34, 91-92-93, 111-112-113 for 71-72-73.

Minor recommendation: Students minoring in speech are required to take Speech 1-2 or 5 plus other speech courses, totaling 27 hours. These courses are to be selected with the aid of an adviser according to the needs of the student. Differential sequences are recommended according to whether the student is primarily interested in General Speech, Theater, Interpretation, Public Speaking and Discussion, or Radio.

All students majoring or minoring in speech must present satisfactory evidence of interest and effective participation in one or more activities, such as debating, dramatics, radio, public reading, and public speaking.

Because of the close relation between English and speech in the high schools of Minnesota, students majoring in speech must have a minor in English as well as one other minor. Modification of the minor requirement may be made on recommendation of a departmental adviser with the approval of the Students' Work Committee.

Students majoring in speech should register for Ed.T. 66Am, the Teaching of Composition in Senior High School, as well as Special Methods and Directed Teaching in Speech, Ed.T. 88A-88B-88C. See the program of the College of Education.

Students interested in preparing for clinical work in speech correction in public schools should read the statement of the specialized curriculum in "Speech Pathology" in the *Bulletin of the College of Education*.

All candidates for the M.A. and Ph.D. degree are required to take Speech 122.

Speech activities—All students in the University are entitled to participate in Intercollegiate Debating, the Freshman-Sophomore Debate, the Freshman-Sophomore Oratorical Contest, the Pillsbury Oratorical Contest, the Verse Reading Contest, and the activities of the University Theatre.

Note—The University maintains a clinical service for students with speech-hearing defects. Students who desire treatment should consult the director of the Speech Clinic, 20 Shevlin Hall. The clinic also accepts a limited number of full-time out-patients who pay a fee of \$100 per quarter. Half-time out-patients pay \$50 per quarter.

Junior College Courses

- 1f-2w.†† Fundamentals of Speech. Development of basic skills in speech: voice and action, oral reading, discussion, extemporaneous speaking (6 cred.; fr.,* soph., jr., sr.; no prereq.) I MWF; II MWF; III MWF; IV MWF; V MWF; VII MWF; VIII MWF; I TThS; II TThS; III TThS; IV TThS Gilkinson and others
- 1w-2s.†† Fundamentals of Speech (See 1f-2w) II MWF; III MWF; IV MWF; VII MWF; VIII MWF; II TThS Gilkinson and others
- 1s.‡ Fundamentals of Speech (First qtr. of 1-2. See 1f-2w) II TThS; IV MWF; VI MWF Gilkinson and others
- 2f.‡ Fundamentals of Speech (Second qtr. of 1-2. See 1f-2w) III MWF Gilkinson and others
- 3f.‡ Fundamentals of Speech. A continuation of 1f-2w. (3 cred.; fr.,* soph., jr., sr.; prereq. 1-2) II MWF Gilkinson and others
- 3w.‡ Fundamentals of Speech (See 3f) III MWF Gilkinson and others
- 3s.‡ Fundamentals of Speech (See 3f) I MWF; II MWF; III MWF; VI MWF; VII MWF Gilkinson and others
- 5f-6w.‡ Fundamentals of Speech (10 cred.; fr.,* soph., jr., sr.; no prereq.) III MTWThF; IV MTWThF; VI MTWThF Gilkinson and others
- 5w-6s.‡ Fundamentals of Speech (See 5f-6w) IV MTWThF; VI MTWThF; VII MTWThF Gilkinson and others
- 5s.‡ Fundamentals of Speech (First qtr. of 5-6. See 5f-6w) III MTWThF; IV MTWThF; VIII MTWThF Gilkinson and others
- 6f.‡ Fundamentals of Speech (Second qtr. of 5-6. See 5f-6w) V MTWThF; VI MTWThF Gilkinson and others

* Open to a limited number of freshmen with the approval of their advisers and the Department of Speech.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per quarter is charged for this course.

- 31f.†† Introduction to the Theater. A course designed to acquaint the student with the theater of today. Readings and projects in various modern theater crafts (3 cred.; soph., jr., sr.; prereq. 1-2-3 or 5-6 or concurrent registration) II MWF Whiting
- 31s.†† Introduction to the Theater (See 31f) II TThS Whiting
- 32f-33w.†† Beginning Acting, Creative Approach. 32: Creation and presentation of original scenes and skits. Ability to respond to the imaginative situation with sincerity, individuality, and effectiveness is stressed. 33: Continuation of creative approach plus study in stage technique and in make-up (6 cred.; soph., jr., sr.; prereq. Sp. 31) II TThS Moulton
- 32w-33s.†† Beginning Acting, Creative Approach (See 32f-33w) II MWF Whiting(w), Turner(s); II TThS Ar.; III MWF Ar.
- 34f.††** Stagecraft—Construction and Painting. Theory and practice in construction, painting, and shifting of stage scenery (3 cred.; soph., jr., sr.; prereq. 31) II T and I-II ThS Andrus

Senior College Courses

Courses 51, 67, 81-82-83, 97 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

- 51s.‡ Advanced Public Speaking. Preparation and delivery of speeches on current public issues (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6) II MWF Gilkinson
- 55f-56w-57s.†† Speech Writing and Platform Speaking. Essentials of voice production and of effectiveness in delivery. The elements of oral style. Written speeches; practice in delivery (9 cred.; jr., sr.; prereq. 1-2-3 or 5-6) VII MWF Gilkinson
- 61f,s.‡ Personal Development Through Speech. A study of behavior as indicated through speech; speech symptoms evaluated from cause and effect relations; psychologic factors in speech; analysis of individual problems of self-consciousness, stage fright; speech as a means of self-control as applied to teacher and pupil (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6; Psy. 1-2) VI MWF Bryngelson
- 65f,w,s.‡ Radio Speech. Speech arts and psychology of the radio. Practice, exercises, projects, and reports on problems of appeal and audience response (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6) II MWF Ziebarth
- 66f,w,s.†† Radio Drama. A study of the historical development of radio drama, with an analysis of the various types of radio dramas including production, direction, and acting techniques (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6; 65 recommended) IV MWF Ar.
- 67f,w,s.†† Phonetics. The study of English speech sounds as they occur separately and in connected speech. Strong and weak forms, stress, assimilation. Practice in ear training (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6) I MWF Irwin
- 71f-72w-73s.††** Play Production: Problems of Dramatic Production in the Secondary School. Primarily for students in the College of Education (9 cred.; jr., sr.; prereq. 1-2, 31, 32) IV MWF Graham
- 78f-79w.†† Advanced Acting—Characterization styles of acting, dialect, and stage technique. Presentation of scenes from great plays (6 cred.; jr., sr.; prereq. 31, 32-33) II MWF Graham
- 78w-79s. Advanced Acting (See 78f-79w) III TThS Ar.
- 81f-82w-83s.†§ Interpretative Reading. Esthetic theory of literature and of oral reading. Practice in reading for interpretation and mastery of technique (9 cred.; jr., sr.; prereq. 1-2-3 or 5-6) IV MWF Thompson; VI MWF Ar.
- 81w-82s.†§ Interpretative Reading (First two qtrs. of 81-82-83. See 81f-82w-83s) I TThS Thompson(w), Ar.(s)
- 83f.†§ Interpretative Reading (Third qtr. of 81-82-83. See 81f-82w-83s) I TThS Ar.
- 85f. Introduction to Speech Correction. Basic orientation in speech correction. Analysis of common non-pathological disorders of speech, their characteristics, prevention, and elimination. Designed as a basis for advanced study in speech pathology or for an elementary understanding of the field. (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6) II TThS Henrikson
- 91w.††** Stage Design. Theory and practice of designing scenery as a functional environment for the stage play (3 cred.; jr., sr.; prereq. 31) III TThS and IV TS Graham

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per quarter is charged for this course.

†† A fee of \$2 per quarter is charged for this course.

§ Speech 81 must be taken first.

¶ Students intending to take Speech Pathology should take Phonetics the preceding spring.

** Students taking Course 71-72-73 may not receive credit for Courses 34, 91-92-93, 111-112-113.

- 92s.††** Stage Lighting. Theory and practice in applying methods and principles of lighting in the theater (3 cred.; jr., sr.; prereq. 31) II TThS and IV TS Andrus
- 93s. Stage Costuming (3 cred.; jr., sr.; prereq. 31) III TThS and IV TS Turner
- 97f,w,s. Intercollegiate Oratory and Debate. Open to the student who represents the University in the annual contest of the Northern Oratorical League contest and to students who win places on the intercollegiate debate squad (1 to 3 cred. by petition; jr., sr.; no prereq.) Ar. Ar. Howell
- 101f-102w-103s. Argumentation and Persuasion. Argumentation as a method of analysis of controversial questions; briefing, adaptive and nonadaptive persuasion; practice in speaking and writing (9 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6; Psy. 1-2; 10 cred. in soc. sci.) III MWF Howell; VI MWF Howell
- 105.* *Theory of Reading and Acting*. Literature as an art; its various forms; the psychology of the creative imagination; speech elements in literature; origins and nature of speech symbols and technique of their use. Collateral readings, problems, reports, term papers (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, 81-82-83, and Psy. 1-2) (*Not offered*)
- 106f,w,s. Discussion. Cooperative thinking; recognition and definition of problems, critical analysis, examination of possible solutions. Planning, preparing for, participating in, and leading classroom, public, and radio discussions (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6) VII MWF Howell
- 109.* *Classical Rhetoric* (3 cred.; jr., sr., grad.; prereq. 101-102-103, Psy. 140) (*Not offered*)
- 111f-112w-113s.††** Stage Direction. 111f: Theory of direction and preparation of the prompt book with exercises in blocking; 112w: Rehearsal problems and the direction of two one-act plays; 113s: Problems of management and staging; the direction of a full length play (9 cred.; sr., grad.; prereq. 31, 32, 34, 91-92-93) III MWF Whiting
- 115f-116w. Playwriting and Production. Creative practice, both historical and experimental, in the problems of dramatic form and content. Two original one-act plays fall quarter, one full-length play winter quarter. The best plays will receive production in the University Theatre (1 to 3 cred. per qtr.; sr., grad.; prereq. 31, 32-33 and permission of instructor) II MWF Thompson
- 117s. Writing Radio Drama. The course is designed specifically for students interested in writing radio drama, including documentary plays, adaptations, original scripts, popular and children's programs (1 to 3 cred.; sr., grad.; prereq. 31, 32-33 and permission of instructor) II MWF Ar.
- 122f. Introduction to Research. Graduate research in speech: selections of topics and methods of investigation. Required of all graduate majors in speech (3 cred.; sr., grad.; prereq. 1-2-3 or 5-6, Psy. 1-2) II TThS Gilkinson
- 124w. Experiments in General Speech. An examination of studies of the correlates of speech skills, audience reactions, and speech improvement (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, Psy. 1-2) II TThS Gilkinson
- 126s. History and Criticism of Public Address. An examination of historical and critical studies of oratory. The study of orators: education and training, style, speech composition, topics and issues, historical settings (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, Psy. 1-2) II TThS Gilkinson
- 131s.†† Community Dramatics. The cultural values of children's theater and children's creative dramatics. Specimen projects, reports, term papers. Observation of children working in creative dramatics (3 cred.; sr., grad.; prereq. 91-92-93 and 111-112-113, or permission of instructor) VI MWF Graham
- 141f. Anatomy and Physiology of the Voice Mechanism. Consideration of respiration, articulation, and phonation. Practical applications to speech improvement (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, 67; Psy. 1-2 and 4-5) VII MWF Irwin
- 142w. The Physical Bases of Speech. Relationship of basic principles of sound to speech mechanism. Analysis of speech sound production (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, 67, Psy. 1-2 and 4-5) VII MWF Irwin
- 143s. Speech Instrumentation. Application of mechanical and electronic equipment to speech; basic theory and uses (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, 67, Psy. 1-2 and 4-5) VII MWF Irwin
- 152f-153w. Problems of Hearing. A study of the hearing mechanism and its function, techniques of determining hearing acuity and electronic aids to hearing (6 cred.; prereq. 1-2-3 or 5-6; 61, 67; Psy. 1-2; or permission of instructor) IV MWF Hedgecock
- 155s. Lip Reading and Lip Reading Methods. A study of the positions and movements involved in English speech and the current methods used in teaching lip reading (3 cred.; prereq. 1-2-3 or 5-6; 61, 67; Psy. 1-2; or permission of instructor) IV MWF Hedgecock

* Courses 105 and 109 are offered in alternate years.

†† A fee of \$2 per quarter is charged for this course.

** Students taking Course 71-72-73 may not receive credit for Courses 34, 91-92-93, 111-112-113.

- 162w-163s.†§ Speech Pathology. 162w: Neurology of speech. Dysphemia and its associated symptom, stuttering. Relation of sidedness and speech disorders, heredity, current theories of dysphemia, types of treatment; 163s: Physiologic and psychologic aspects of organic and functional speech problems. Articulatory disorders. Diagnoses and treatment. Clinical observation (6 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6; 61, 67, 85) VI T and VI-VII Th Bryngelson(w), Henrikson(s)
- 164f-165w-166s. Clinical Methods and Practice in Speech Pathology (The same as Ed.C.I. 174-175-176) (9 cred.; sr., grad.; prereq. 1-2-3; 61, 67, 162, and Ed.Psy. 142. May be taken simultaneously with Sp. 163) VIII WF and Ar. Bryngelson
- 169w. Speech and Language in Human Behavior. Basic orientation in the place of speech and language in human behavior. Individualized projects and collateral reading (3 cred.; jr., sr., grad.; prereq. consent of instructor) VII MWF Henrikson
- 171f-172w-173s.§ History of the Theater. A study and an analysis of the arts and crafts of the theater from the beginnings to the present. Special reports and projects (9 cred.; sr., grad.; prereq. 1-2-3 or 5-6; 31) VII T and VI-VII Th Thompson
- 174-175-176.§ *Theater Backgrounds*. A study of playwrights from Aeschylus to the present day with emphasis on the theatrical effectiveness of their plays (9 cred.; sr., grad.; prereq. 1-2-3 or 5-6; 31. Courses in literature recommended) (*Not offered*)
- 181f-182w-183s. Readings in Speech. Directed reading and preparation of reports on selected subjects (Cred. ar.; jr., sr., grad.; prereq. 1-2-3 or 5-6 and six additional credits and consent of instructor) Ar. Ar. Bryngelson, Gilkinson, Graham, Henrikson, Howell, Irwin, Thompson, Whiting
- Eng. 184f-185w-186s. The Interpretation of the Drama. Critical analysis of plays: modern, Renaissance, and ancient (9 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C, Eng. 55-56 recommended) IX-X W Ar.
- 191f-192w-193s. Advanced Technical Problems. Advanced problems in the technical phases of the theater. Special problems are assigned to individual students (9 cred.; jr., sr., grad.; prereq. 111-112-113) VIII M Whiting

For Graduate Students Only

- 201f,w,s. General Seminar. Ar. Ar. Staff
- 207f-208w-209s. Seminar in Rhetoric and Persuasion. Ar. Ar. Howell
- 211-212-213. *Seminar in Dramatic Theory* (*Not offered*)
- 221f-222w-223s. Seminar in Oral Interpretation of Literature. Ar. Ar. Ar.
- 231f-232w-233s. Seminar in Advanced Speech Problems. Ar. Ar. Gilkinson
- 261f-262w-263s. Seminar in Speech Pathology. Ar. Ar. Henrikson
- 291f-292w-293s. Research in Special Problems. Ar. Ar. Bryngelson, Gilkinson, Henrikson, Howell, Irwin, Thompson, Whiting

SWEDISH

See Scandinavian, page 121.

PREPARATION FOR THEOLOGICAL TRAINING

The attention of students intending to enter theological seminaries or to take other special training for religious work is drawn to the following interdepartmental (or liberal arts) major:

1. Philosophy 50-51-52. General History of Philosophy (15 credits).
2. Nine credits from these courses in philosophy:
 - 106-107. Plato (6 credits)
 - 114. Introduction to American Philosophy; Puritanism to Pragmatism (3 credits)
 - 180. History of Religions (3 credits)
 - 181. Psychology of Religion (3 credits)
 - 182. Philosophy of Religion (3 credits)
3. Nine credits from these courses in history:
 - 53-54-55. Medieval European History (9 credits)
 - 53a-54a-55a. Renaissance and Reformation (9 credits)

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

§ Courses 171-172-173 and 174-175-176 are offered in alternate years.

¶ Students intending to take Speech Pathology should take Phonetics the preceding spring.

4. Eighteen credits from the following group: 9 credits in Senior College Greek; 9 credits in Senior College psychology; 9 credits in Senior College economics; 9 credits in Senior College sociology, including Sociology 142 (Religion As a Social Institution)
5. Nine additional Senior College credits, making a total of 60 credits in Senior College courses.

NOTE: Several theological seminaries have suggested that students take courses in literature, especially English literature, either in the Junior College or as electives in the Senior College. Attention is also called to courses in Humanities.

Students interested in this program may consult with Mr. Conger (Room 300 Folwell Hall) or Mr. Castell (Room 323 Folwell Hall).

ZOOLOGY

Major adviser in the College of Science, Literature, and the Arts—Professor Minnich.

Major sequence in the College of Science, Literature, and the Arts—27 credits in Senior College courses of which at least 18 must be in courses with numbers between 49 and 100.

(Prerequisites: 1-2-3 or equivalent and 21, 22, or equivalent. If possible beginning chemistry and at least one year of French or German should be completed during the Junior College work.)

Major adviser in the College of Education—Professor Wodsedalek.

Requirements for a teacher's certificate—Major recommendation: General Zoology, Zoology 52, 53, 75, 83, and Physiology 4.

Minor recommendation: A minimum of 18 credits including General Zoology, Zoology 53 and 75.

For a specialized curriculum in Natural Science see *College of Education Bulletin*.

For a course in General Biology see Department of General Studies, page 63.

Junior College Courses

- 1f-2w-3s.†† General Zoology. Structure, physiology, embryology, classification, and evolution of animals (10 cred.; no prereq.) Lect. II TTh Minnich; IV WF Wodsedalek; VII TTh Olson; VIII MF Minnich; lab. sections as follows: I-II MF; III-IV MF; V-VI MF; VII-VIII MF; IX-X MF; I-II TTh; III-IV TTh
- 14f-15w.†† General Zoology. Structure, physiology, embryology, classification, and evolution of animals (For students of the College of Agriculture, Forestry, and Home Economics, Nursing, and Pharmacy) (6 cred.; no prereq.) Lect. V TTh Dawson; VII TTh Dawson; lab. sections as follows: V-VI TTh; VII-VIII TTh; IX-X TTh
- 21f.‡§ Histology. Microscopic structure of the tissues and organs (5 cred.; soph., jr., sr.; prereq. 1-2-3) Lect. III TThS Ringoen; lab. sections as follows: I-II TThS‡; VI-VIII TTh
- 22w.‡† Comparative Anatomy. Comparative study of vertebrate systems tracing the development of the various structures from the lowest forms to man (5 cred.; soph., jr., sr.; prereq. 1-2-3) Lect. III TThS Eddy; lab. sections as follows: VI-VIII TTh; VI-VIII MW; III-IV MWF

Senior College Courses

Courses 50, 51, 52, 53, 81, 82, and 83 are open to sophomores who have a grade of at least C in Course 1-2-3. Other Senior College courses in this department are open to Junior College students only by special permission of the Students' Work Committee. See a statement on page 26.

50s.‡§ Introduction to General Physiology. Comparative physiology of cells and cell systems. Physics and chemistry of protoplasm (5 cred.; soph., jr., sr.; prereq. 1-2-3 or 15 cred. in bot.; and 10 cred. in chem. or permission of instructor) Lect. III TThS; lab. I-II TThS Steinbach

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1.50 per quarter is charged for this course.

‡‡ A fee of \$7.00 is charged for this course.

§ Not open to regular three-year premedical and pre dental students.

¶ All zoology majors should register for this section.

- 51f.‡ Introductory Animal Parasitology. An elementary course dealing with parasitic protozoa, worms and arthropods, and their relation to diseases of man and animals (5 cred.; jr., sr.; prereq. 1-2-3) Lect. VI MWF Wallace; lab. sections as follows: I-II MWF; III-IV MWF; VII-VIII* MWF*
- 52w.‡ Introductory Entomology. General morphology, life histories, habits, and classification of insects (5 cred.; jr., sr.; prereq. 1-2-3) Lect. VIII MWF Mickel; lab. sections as follows: VI-VII MWF; IX-X MWF
- 53s.‡ Faunistic Zoology. A study of the identification, classification, and life histories of common land and fresh-water animals exclusive of insects and birds (5 cred.; jr., sr.; prereq. 1-2-3) Lect. VIII MWF Eddy; lab. sections as follows: VI-VII MW and VI-IX F; IX-X MW and VII-X F
- 57w.‡-58s.‡ Introductory Ornithology. A laboratory and field course in the structure, classification, distribution, migration, habits, habitats and identification of the birds of this region (6 cred.; soph., jr., sr.; prereq. 1-2-3) Lect. and lab. VII-IX TTh Warner
- 75s.‡ Nature Study. A methods course in teaching biology and general science (3 cred.; jr., sr.; prereq. 15 cred. including 1-2-3. Required of all zoology majors and minors in the College of Education in the junior year) Lect. and lab. VI-VIII TTh Wodsedalek
- 81f.‡ Invertebrate Zoology. A review of the invertebrate phyla with emphasis on structure and general classification (3 cred.; jr., sr.; prereq. 1-2-3) Lect. II WF; lab. I-II TTh Dawson
- 82w. Organic Evolution. History, opposition, evidence, causes, conclusion (3 cred.; jr., sr.; prereq. Zool. 1-2-3 or Bot. 1-2-3) II MWF Dawson
- 83f.s. Introduction to Genetics and Eugenics. The genetic principles derived from experimentation with both plants and animals are considered, together with their application to practical problems, including those of human society (3 cred.; jr., sr.; prereq. 1-2-3 or ten credits in botany) II MWF Reed
- 107w.‡-108s.‡ Protozoology. A survey of the free-living protozoa: structure, classification, identification; physiology, reproduction, life histories; genetics and morphogenesis (6 cred.; jr., sr., grad.; prereq. 15 cred.) Lect. and lab. III-V TTh Osterud
- 109w.‡ Sense Organs. A survey of the structure and function of the sense organs of invertebrate and vertebrate animals (3 cred.; jr., sr.; grad.; prereq. 15 cred. and consent of instructor) Lect. and demonstrations IV MWF Minnich
- 110s.‡ Animal Reactions. A survey of the nervous system, effectors and behavior patterns of animals (3 cred.; jr., sr., grad.; prereq. 15 cred. and consent of instructor) Lect. and demonstrations IV MWF Minnich
- 112f.‡-113w.‡ Advanced General Physiology. Interactions between cell and environment; enzyme action and general protoplasmic structure and metabolism (3 cred.; jr., sr., grad.; prereq. 15 cred. with consent of instructor) Lect. VI MF Steinbach; lab. VI-IX W
- 117f.‡-118w.‡-119s.‡¶ Animal Ecology. 117f and 119s: A study of land and aquatic communities, reactions to the environment, and general principles of population; 118w: Experimental approach to the study of environmental factors affecting animal populations (9 cred.; jr., sr., grad.; prereq. 15 cred.) Lect. VI TTh Eddy; lab. VII-VIII TTh Hodson
- 120s.¶ General Ecology of Insects. Special emphasis on its application to problems in economic entomology (3 cred.; jr., sr.; prereq. 15 cred. in zool. or ent.) VI-VIII TTh Hodson
- 121f.‡ Ichthyology. A study of the taxonomy and habits of North American fishes with special reference to those of upper Mississippi drainage (3 cred.; jr., sr., grad.; prereq. 15 cred.) Lect. and lab. IX-X MWF Eddy
- 125f.‡-126w.‡-127s.‡ Advanced Entomology. Morphology, biology, and classification of insects (9 cred.; jr., sr., grad.; prereq. 15 cred.) Lect. I TTh Mickel; lab. I-III S
- 128f.‡-129w.‡ Insect Physiology. General and comparative physiology of insects, a survey of the organ systems and their functioning in various insects (8 cred.; jr., sr., grad.; prereq. 15 cred. in zool. or ent. and consent of instructor. Zool. 50 or equiv. recommended) Lect. VI WF; lab. VII-IX WF Richards
- 132.‡ *General Physiology of Development*. A general survey of physicochemical aspects of fertilization, cleavage, differentiation, growth, and development of form. Particular emphasis is placed on the energy exchanges and chemical kinetics involved in the phenomena of organic development (3 cred.; jr., sr., grad.; prereq. 50 and 180 or consent of instructor) (*Not offered*)
- 144f.‡ Medical Entomology. A study of the principal arthropods noxious to man and animals. Special emphasis is placed on those arthropods which serve as vectors of pathogenic organisms of man and animals (3 cred.; jr., sr., grad.; prereq. 15 credits) Lect. and lab. VII-IX TTh Burroughs
- 145w.‡ Parasitic Protozoa. The structure, life histories and economic relations of protozoal parasites of man and animals. Laboratory diagnosis (3 cred.; jr., sr., grad.; prereq. 15 cred.) Lect. and lab. VII-IX TTh Wallace

* For students in Medical Technology only except by special permission of the Department of Zoology.

‡ A fee of \$1.50 is charged for this course.

¶ Either 119s or 120s or both may be taken to complete Course 117f-118w.

- 146s.‡ Helminthology. Worm parasites of man and animals, their structure, life histories, and biological relationships (3 cred.; jr., sr., grad.; prereq. 15 cred.) Lect. and lab. VII-IX TTh Wallace
- 149w‡-150s.‡ Histology and Organology. Comparative study of the microscopic structure of tissue and organs (6 cred.; jr., sr., grad.; prereq. 15 cred. in zool.) Lect. and lab. II-IV TTh Ringoen
- 155w.‡ Biophysics. A survey of the theoretical and experimental aspects of biology which can be studied by quantitative physical means. Includes tissue ultrastructure as revealed by birefringence, X ray, electron and radioactive means; tracers; surface phenomena; colloidal and micellar phenomena; and the excitatory process in nerve and muscle (3 cred.; jr., sr., grad.; prereq. 10 cred. in zool. and consent of instructor. Physics recommended) Lect. and lab. Ar. Ar. Schmitt
- 160f‡-161w.‡ Cytology. A survey of cell structure and behavior with special reference to genetic cytology and cellular physiology (6 cred.; jr., sr., grad.; prereq. 15 cred. with consent of instructor) Lect. and lab. VI-VIII TTh Wodsedalek
- 170f.‡ Advanced Genetics. General laws involved in heredity and variation, with their applications to micro-organisms, higher plants and animals exclusive of man (3 cred.; jr., sr., grad.; prereq. 15 cred. including Course 83, or consent of instructor) Lect. and lab. VII-IX MW Reed
- 171w. Genetics of Speciation (3 cred.; jr., sr., grad.; prereq. 15 cred. including 83, or consent of instructor) VII MWF Reed, Merrell
- 175s. Human Genetics. A study of the inherited characters in man, particularly from the point of medicine with some reference to the relation of genetics to marriage and to social conditions (3 cred.; jr., sr., grad.; prereq. 83 and 170 or consent of instructor) IX MWF Reed
- 180s.‡ Comparative Embryology. A study of the embryological development of invertebrate and vertebrate forms (3 cred.; jr., sr., grad.; prereq. 15 cred. including Course 21 or equiv.) Lect. and lab. III-IV MWF Ringoen
- 181f. Endocrines and Reproduction. Endocrines with special reference to those concerned with the physiology of reproduction (3 cred.; jr., sr., grad.; prereq. 15 cred. including Course 21 or equiv.) III MWF Ringoen
- 182w. Experimental Embryology. Recent investigations in developmental mechanics (3 cred.; jr., sr., grad.; prereq. 15 cred. including Course 21 or equiv.) III MWF Ringoen
- 197f-198w-199s. Problems. Advanced work in some special line (Cred. ar.; jr., sr., grad.; prereq. 1-2-3, special requirements) Ar. Ar. Ar.

For Graduate Students Only

- 100f-101w-102s. Zoological Techniques
- 201f-202w-203s. Research in Entomology
- 211f-212w-213s. Research in Ecology
- 217f-218w-219s. Research in Physiology
- 221f-222w-223s. Research in Biophysics
- 229f-230w-231s. Research in Histology
- 233f-234w-235s. Research in Embryology
- 237f-238w-239s. Research in Cytology
- 241f-242w-243s. Research in Protozoology
- 251f-252w-253s. Research in Genetics
- 261f-262w-263s. Research in Parasitology
- 291f-292w-293s. General Seminar
- 296f-297w-298s. Special Seminar in Special Research Fields

ENTOMOLOGY AND ECONOMIC ZOOLOGY

Students in this college may elect courses in Entomology and Economic Zoology by arrangement with the department, but before registering for any courses they should get the approval of the Students' Work Committee. See the bulletin of the College of Agriculture, Forestry, and Home Economics.

‡ A fee of \$1.50 is charged for this course.

Section III

PREPROFESSIONAL CURRICULA IN SCIENCE, LITERATURE, AND THE ARTS

As explained on page 7 of this bulletin, many students enter the College of Science, Literature, and the Arts in order to secure the essential foundation for entrance into a professional school. The preprofessional work consists of courses particularly related to the field of ultimate interest together with courses of a broadening general education nature.

It is essential that the student study the preprofessional requirements for the field of his choice very carefully if he is to continue his college career without loss of time. Detailed outlines of the curricula in the College of Science, Literature, and the Arts which are prerequisite for entrance into the various professional schools are presented below.

A. UNIVERSITY COLLEGE

An administrative unit known as the University College has been created under a committee which may register students who find they must cross college lines to obtain a program fulfilling their needs. Any student who finds that his needs cannot be satisfied by the program in any one college of the University should call at 146 Physics Building to make an appointment to see the chairman of the committee, Dr. J. W. Buchta, who also serves as assistant dean for the Senior College.

Admission to University College is based on the previous record of the student and the program proposed by the student. The program may contain courses in any college or division of the University but must show definite evidence of contributing to the objectives of the student and be deemed worthy of a degree by faculty members consulted by the chairman of the committee.

The degree bachelor of arts or bachelor of science is granted by this unit of the University.

B. SCHOOL OF ARCHITECTURE—SIX-YEAR COURSE*

In this course the student normally is registered for the first four years in the College of Science, Literature, and the Arts and for the last two years in the School of Architecture of the Institute of Technology.

While registered in this college he follows the plan of study prescribed for a bachelor of arts degree with a major in architecture. See the Junior and Senior College requirements as given on pages 9-13 of this bulletin and also the departmental listing on Architecture in Section II.

* For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

The following courses should be completed during this period. Required for the major sequence :

Course No.	Title	Credits
Arch. 40	Graphic Representation	6
Arch. 51-52-53	History of Architecture	12
Arch. 57	Building Materials and Methods, Part I	4
Art 20, 21 and 60, 61, 62	Drawing and Painting I and II	10
Arch. AD-I, II	Architectural Design, Grades I and II	30

Additional Special Requirements :

Math. 6-7-30	Trigonometry, College Algebra, Analytic Geometry	15
M.&M. 91-92-93	Calculus, Mechanics, Strength of Materials	12
C.E. 38-39-41	Structural Design	9

Junior and Senior College courses to make a total for the bachelor of arts degree of 189 credits.

NOTE—Of the courses listed above, Civil Engineering 38-39-41 (9 credits) is not a part of the work required (normally 180 credits) for the bachelor of arts degree. It is an extra requirement which should be taken as a prerequisite for the work of the last two years of this six-year course in Arts and Architecture.

Upon completion of the requirements for the bachelor of arts degree, and subject to approval by the School of Architecture, the student is registered in the Institute of Technology to complete the requirements for a bachelor of architecture degree, as prescribed in the *Bulletin of the Institute of Technology*.

C. SCHOOL OF BUSINESS ADMINISTRATION*

The purpose of the Prebusiness Curriculum is to combine an opportunity for some liberal education with preliminary basic courses in economics. In recognition of the widening social responsibility of business management, the student is urged to elect courses in several fields in addition to fulfilling the following requirements.

To be eligible for admission to the School of Business Administration, the student must present ninety credits, in addition to credits given for physical education, earned in a recognized college or university with a scholarship average of C or a smaller number of earned credits which, together with quality credits, will total a minimum of ninety. One quality credit is granted for every five honor points in excess of the number necessary for a C average.

Quality credits earned in the Junior College may be applied only toward the ninety credits required for admission to the School of Business Administration. In other words, a student who has a surplus of honor points above the number required to complete ninety credits may not use these for credit in the School of Business Administration. Any excess credits other than quality credits, however, may be applied toward electives in the School of Business Administration.

The School of Business Administration offers courses leading to the degrees of *bachelor of business administration* and *bachelor of science in economics*. Students preparing to enter the school in pursuit of either of these degrees must satisfy prebusiness requirements as specified below.

* For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

*A. Junior College Requirements for Admission to Sequences Leading to the
Degree of Bachelor of Business Administration*

English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or exemption from the requirement. Twelve credits in Communication (Comm. 1-2-3) taken at the University of Minnesota will satisfy the English requirement.

Nine credits in mathematics or *one* of the following laboratory sciences: botany, chemistry, geology, physics, zoology, or psychology with laboratory. Fifteen credits in Orientation in the Natural Sciences (Nat.Sci. 1-2-3) or ten credits in The Physical World (Nat.Sci. 4-5-6) or ten credits in General Biology (Nat.Sci. 7-8-9), if taken at the University of Minnesota, will satisfy the science requirement

Eight credits in *one* of the following social sciences: anthropology, geography, history, political science, or sociology†

Ten credits in Principles of Economics (Econ. 6-7)

Sufficient electives to complete the minimum of ninety credits required for admission

Entering freshmen are urged to take Business History (Econ. 1-2)

The following three courses should, if possible, be taken during the sophomore year for they are prerequisite to certain courses in the core group:

Elements of Money and Banking (Econ. 3)

Elements of Statistics (Econ. 5)§

Principles of Accounting (Econ. 22-23)¶

Students who do not elect the above courses in money and banking and statistics during the sophomore year may substitute the following after entrance to the School of Business Administration:

Money and Banking (B.A. 57); Statistics Survey (B.A. 70)

In addition certain courses are required in special sequences in the school. These course prerequisites should be included in the Junior College program wherever possible. The major sequences and special course prerequisites are as follows:

Accounting: Mathematics of Investment (Math. 20), (prereq. Math. 8, or 6 and 7, or 15 and 16)

Advertising: General Psychology (Psy. 1-2)

Retail Store Training: General Psychology (Psy. 1-2); Typewriting (Econ. 32-33)‡

Foreign Trade: General Psychology (Psy. 1-2); 9 credits in political science; reading knowledge of a foreign language

Finance: Mathematics of Investment (Math. 20), (prereq. Math. 8, or 6 and 7, or 15 and 16)

Industrial Administration: (See *Bulletin of the Institute of Technology*)

Industrial Relations: General Psychology (Psy. 1-2)

Insurance: General Psychology (Psy. 1-2); Mathematics of Investment (Math. 20), (prereq. Math. 8, or 6 and 7, or 15 and 16)

Merchandising: General Psychology (Psy. 1-2)

Office Management: General Psychology (Psy. 1-2); Typewriting (Econ. 32-33-34)‡

Secretarial and Supervisory Training: General Psychology (Psy. 1-2); Typewriting (Econ. 32-33-34)‡; Shorthand (Econ. 37-38-39)‡

Traffic and Transportation: General Psychology (Psy. 1-2); Geography of Commercial Production (Geog. 41)

DISTRIBUTION OF COURSES

Of the required and elective courses in economics, Economics 1-2, which is strongly recommended but not required, belongs in the freshman year; Economics 3 may be taken in the freshman year (to make with Economics 1-2 the sequence 1f-2w-3s), or may be taken later; Economics 5, 6-7 and 22-23 belong in the sophomore year.

Of the courses taken to meet the requirements of (1) English, (2) social science, (3) mathematics or laboratory science, freshmen should take at least two and thus leave not more than one for the sophomore year. To meet the third of these requirements, students who intend to specialize in accounting, banking, insurance, or statistics should take mathematics instead of natural science. Indeed, mathematics is recommended for all students planning to enter the School of Business Administration, either as a subject to meet this requirement or as an elective.

Courses in English, mathematics, all the laboratory sciences, and all of the social sciences are open to freshmen.

† Social Statistics (Soc. 45) not accepted in fulfillment of this requirement.

‡ A laboratory fee of \$2.50 will be required of students who register for one or more of the courses in secretarial training.

§ Credit not granted in Econ. 5 to students who have had Social Statistics (Soc. 45).

¶ Students who have had a high school course or experience in bookkeeping will be admitted to Econ. 23 by passing a placement test. For other students Econ. 22 is a prerequisite to Econ. 23.

Of other courses recommended above, Psychology 1-2 (General Psychology) belongs in the sophomore year; Economics 32-33 (Typewriting) may be taken as early as the student's first quarter in college, with the instructor's permission; foreign language, which is required in the foreign trade sequence, may be taken as early as the beginning of the freshman year.

B. Junior College Requirements for Admission to Sequences Leading to the Degree of Bachelor of Science in Economics

Economics Sequence	Credits
English (Comp. 4-5-6 or Comm. 1-2-3) or English A-B-C	9 or 12 or 15
Mathematics	10
Elements of Money and Banking (Econ. 3)*	5
Principles of Economics (Econ. 6-7)	10
Elements of Statistics (Econ. 5)*§	5
Political Science or History	9
Philosophy (Philosophy 1 or 2)	5
Additional mathematics or laboratory science	10
Electives	27 or 24 or 21
	90
<hr/>	
Statistics Sequence	
English (Comp. 4-5-6 or Comm. 1-2-3) or English A-B-C	9 or 12 or 15
Trigonometry (Math. 6)	5
College Algebra (Math. 7)	5
Analytic Geometry (Math. 30)	5
Elements of Money and Banking (Econ. 3)*	5
Principles of Economics (Econ. 6-7)	10
Elements of Statistics (Econ. 5)*§	5
Political Science or History	9
Philosophy (Philosophy 1 or 2)	5
Additional mathematics	5
Principles of Accounting (Econ. 22-23)¶	8
Electives	19 or 16 or 13
	90

D. SCHOOL OF DENTISTRY**

1. TWO-YEAR PREEDENTAL COURSE

The two-year preedental course required for admission to the School of Dentistry is a part of the six-year course in dentistry leading to the degree of doctor of dental surgery. During the two years of prescribed work, students are registered in the College of Science, Literature, and the Arts and subject to its regulations. A minimum of ninety earned credits with a scholarship average of C is required for admission. Quality credits may not be applied to decrease the ninety credits. It is desirable that students should have had chemistry and higher algebra in high school. The required college courses are listed below:

- Inorganic Chemistry 1-2-11 or 4-5-11 or equivalent (General Inorganic Chemistry and Semimicro Qualitative Analysis, 12 credits)
- Organic Chemistry 61-62 (Elementary Organic Chemistry, 8 credits)
- English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement
- Physics 1a-2a-3a (Introduction to Physical Science, with laboratory included, 12 credits)
- Zoology 1-2-3 (General Zoology, 10 credits)

* Students who do not elect the above courses in money and banking and statistics during the sophomore year may substitute the following: Money and Banking (B.A. 57); and Statistics Survey (B.A. 70).

§ Credit not granted in Econ. 5 to students who have had Social Statistics (Soc. 45).

¶ Students who have had a high school course or experience in bookkeeping will be admitted to Econ. 23 by passing a placement test. For other students Econ. 22 is a prerequisite to Econ. 23.

** For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

Drawing, economics, history, Latin or a modern language (high school or college), political science, psychology, sociology, and speech are recommended as electives to make up the total of 90 quarter credits

It is recommended that the two years' work be distributed as follows:

First year—Chemistry 1-2-11 or 4-5-11 (12 credits); English 4-5-6 (9 credits) or English A-B-C (15 credits) or Comm. 1-2-3 (12 credits); Zoology 1-2-3 (10 credits); one or more elective courses.

Second year—Organic Chemistry (8 credits); Physics 1a-2a-3a (12 credits); elective subjects to make the total of 90 credits for the two years' work.

2. SEVEN-YEAR COURSE IN ARTS AND DENTISTRY LEADING TO THE DEGREES OF BACHELOR OF ARTS¶¶ AND DOCTOR OF DENTAL SURGERY†¶

During the first three years of this course, the student does his work in the College of Science, Literature, and the Arts, subject to the regulations of the college, and must earn at least 135 credits, with a scholarship average of C. At least 30 credits§§ must be in Senior College courses. He must complete the requirements for admission to the Senior College, which are given on pages 9-11 and also the work in chemistry, physics, and zoology prescribed for admission to the School of Dentistry.

During his third year, the student elects work in this college, subject to the approval of the assistant dean for the Senior College. The work of the freshman and sophomore years in the School of Dentistry, exclusive of technical and practical work, when completed according to the standards required by that school, counts as the equivalent of the fourth year (45 credits of the Arts course).

3. FOUR-YEAR COURSE LEADING TO THE DEGREES OF GRADUATE DENTAL HYGIENIST AND BACHELOR OF ARTS

This program consists of two years of work in the School of Dentistry and two years in the College of Science, Literature, and the Arts. When students have completed the work for dental hygienists, as specified in the *Bulletin of the School of Dentistry*, with a C average, they may enter the Senior College of the College of Science, Literature, and the Arts; and they may qualify for the degree of bachelor of arts provided (1) that they complete 90 credits of work subject to the rules regularly governing Senior College students including a major and a minor, and (2) that these 90 credits include courses to meet the Junior College group requirements stated on pages 9-11, which have not already been met.

E. COLLEGE OF EDUCATION

CURRICULA WHICH DO NOT INCLUDE PRELIMINARY WORK IN THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

All students who desire to receive a state teacher's certificate upon graduation from the University of Minnesota must be graduates of the College of Education. In many cases students register in that college at the beginning of their junior year. In certain special four-year and five-year curricula, however, they should register in the College

† Only students who have completed the required work in the College of Science, Literature, and the Arts before entering the professional school will be permitted to avail themselves of the privilege of securing the B.A. degree in this combined course.

¶ From the School of Dentistry.

§§ Thirty is the number usually required. For some students it may be reduced by special permission of the assistant dean for the Senior College.

¶¶ From the College of Science, Literature, and the Arts.

of Education at the beginning of their freshman year or as soon thereafter as they have made their curriculum choice. The special four-year curricula are Art Education; Elementary Education; Industrial Education; Kindergarten, Primary, and Nursery School Education; Music Education; Physical Education for Men; Physical Education for Women; Recreational Leadership; Rural Education; Teachers of Handicapped Children; and Visiting Teacher.

Special five-year curricula leading to the degree of master of education are offered in Art Education; Elementary Education; Industrial Education; Kindergarten, Primary, and Nursery School Education; Music Education; Physical Education for Men; Physical Education for Women; Rural Education; and Recreational Leadership.

In the four- and five-year curricula for Agricultural Education and Home Economics Education the preliminary work is done in the College of Agriculture, Forestry, and Home Economics. (See the bulletin of that college or the *Bulletin of the College of Education*.)

Five-year curricula are also offered in English Education, Natural Science Education and Social Studies Education. In these curricula the first two years' work is done in the College of Science, Literature, and the Arts.

CURRICULA WHICH INCLUDE PRELIMINARY WORK IN THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

*General Requirements for Entering the College of Education**

For all general and special curricula other than those listed previously the prescribed work of the first two years is done in the College of Science, Literature, and the Arts.

The following general requirements apply to all students who regularly enter the College of Education at the beginning of their junior year:**

1. A total of 90 to 96 credits carried with a scholarship average of C. (For each five honor points in excess of the number necessary for a C average, the number of credits is diminished by one.) For men 3, and for women 5, of these credits should be in physical education. (No credit is granted for physical education courses by the College of Science, Literature, and the Arts, but upon transfer to the College of Education, the student will receive the credits and honor points earned in those courses.)

2. The student must have completed 6 credits in General Psychology 1-2.

3. Health education—All students in the College of Education, before graduation, are required to take a sequence of courses in (a) personal health, (b) community health, and (c) school health; but students will be exempted from either or both of the first two requirements on the basis of knowledge shown through placement tests. The number of credits will depend upon possible exemptions and the sequence of courses chosen. A minimum of six credits covering all three fields is required unless students are exempted from (a) and (b). It is desirable, but not required, that this requirement be met before entering the College of Education.

Junior College courses which may be taken to meet the requirement in personal health are as follows: Public Health 3 (Personal Health, 2 credits) or General College 10C (Human Biology). The Junior College course to meet the requirement in (b) community health is Public Health 4 (Health Problems of the Community, 2 credits). The course Public Health 50 (Public and Personal Health, 3 credits), taken after entering the College of Education, will meet the requirements of (a) and (b).

* For exception in special cases to the total credit requirement, group requirements, or other requirements, the student may consult the director of admissions or the chairman of the Students' Work Committee of the College of Education.

** Students who transfer to one of the specialized curricula mentioned above should consult the *Bulletin of the College of Education* for the requirements of the first two years.

4. At the time of entrance to the College of Education a student must present a certificate from the Students' Health Service indicating that he is free from physical defects that would prevent the successful pursuit of educational work.

*Group Requirements for Students Entering the College of Education with
Majors and Minors in Academic Subjects**

Students preparing to teach academic subjects in senior high schools and to qualify for the state high school standard certificate must have one major and one or more minors in subjects taught in high schools. The College of Education offers majors and minors in the following fields: English, speech, journalism; German, Latin, French, Scandinavian, Spanish; library science; geography, history, political science, sociology; botany, chemistry, physics, zoology; public health; mathematics. The specific requirements for the different majors and minors are given in Section II of this bulletin and also in the *Bulletin of the College of Education*. Special combinations of majors and minors are provided in the natural science and social studies curricula.

The selection of suitable majors and minors and the most desirable combinations of subjects is very important in securing a high school teaching position. The College of Education prepares a mimeographed statement showing the current demands for teachers in the various types of work, the fields of high school teaching in which there are the best prospects for positions, the best combinations of majors and minors, the personal and scholastic qualifications a prospective teacher should have, and other facts which may affect the choice of vocation or the choice of curriculum. Students are urged to get a copy of this material and to consult an adviser in the College of Education as early in their course as possible. Advisers will furnish information and offer suggestions with regard to choice of majors and minors and the most advantageous combinations of subjects. Students may also consult the director of the Bureau of Recommendations concerning future placement.

Before entering the College of Education the student must complete, in addition to the requirements listed above, the group requirements of the Junior College of the College of Science, Literature, and the Arts. With slight modifications the student may choose either Plan I or Plan II. (See pages 9-11.) For most students Plan II is preferable.

Modifications to meet College of Education entrance requirements are as follows:

a. In either plan six credits in psychology (Psy. 1-2, General Psychology) are required.

b. In either plan the student is advised to complete the (1) personal health and (2) community health information requirement. This includes in addition to P.H. 3, Personal Health (or equivalent), the course P.H. 4, Health Problems of the Community. (Students will be excused from this requirement if they pass a certain approved examination covering community health information which will be offered every quarter by the Student Counseling Bureau at a time and place to be announced in the University's Official Daily Bulletin.)¶

c. In Plan I the student may not use psychology (with laboratory) to meet the natural science requirement in Group D.

d. In Plan II, Group D, the student must take a minimum of 9 credits in natural science exclusive of psychology and mathematics.

* For detailed information about curricula see the *College of Education Bulletin*; for information about the individual subjects of study in these curricula (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

¶ The course Public Health 50 (Public and Personal Health, 3 credits) is a substitute for both Course 3 and Course 4. It is primarily for juniors and seniors but sophomores are sometimes allowed to take it.

e. Within the total credits a student must meet, in fields of study which are represented in prevailing high school curricula, the following requirement in the Junior College: At least 15 credits in a major field and at least 10 credits in each of two minor fields. The purpose of this requirement is to prepare the student for the study of advanced courses necessary to the completion of satisfactory teaching majors and minors.

*Specific Requirements for Entering the College of Education in
Certain Four- and Five-Year Specialized Curricula*

The College of Education, in its undergraduate and graduate curricula, provides training for many different kinds of educational positions: superintendents of schools, high school and elementary school principals, elementary school supervisors, teachers in normal schools and teachers colleges, educational counselors, school psychologists; teachers of special subjects and of special classes; school librarians; visiting teachers; positions in junior high schools, elementary schools, kindergartens, nursery schools, public health nursing, nursing education, recreational leadership, school health work, and speech pathology. In all cases except the special four-year and five-year curricula previously mentioned, the preliminary work is done in the College of Science, Literature, and the Arts. The Junior College work, however, is selected to meet the professional needs, and specific courses are required. The student should consult the *Bulletin of the College of Education* for the requirements of his curriculum and should confer with the adviser for that curriculum early in his course.

The specialized curricula offered by the College of Education based upon two years' work in the College of Science, Literature, and the Arts are Commercial Education, Library Science, Natural Sciences, Social Studies, and Speech Pathology.

Credits earned in required courses in Art Education, Industrial Education, and Physical Education will be granted upon transfer to the College of Education.

Professional training for administrative and supervisory positions, the teaching of professional subjects, positions as school counselor and school psychologist, and for other specialized work is secured by taking a fifth year in the Graduate School with a major in some field of education.

Course Preliminary to Nursing Education and Public Health Nursing in the College of Education and in the School of Public Health (See page 151)

F. LAW SCHOOL*

Students in the University preparing to enter the Law School register in the College of Science, Literature, and the Arts. Ninety credits of academic work are required for admission to the Law School. A scholarship average of C for all courses taken up to the time of admission is also required. Excess honor points do not reduce the number of credits required.

Before trying to plan their college course preliminary to the Law School, students should read carefully the statements about the combined courses in Arts and Law and in Business Administration and Law described below.

The following course has been outlined by the faculty of the Law School for the two years of college study required. The Humanities courses may be taken in place of, or in addition to, the courses in Political Science.

Accounting: Economics 22-23 (Principles, 8 credits) or 27 (Survey, 5 credits)¶
Economics: 6-7 (Principles of Economics, 10 credits)

* For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

¶ This course in accounting is a special course for prelaw students. It is not open to students who have had all or part of Economics 22-23 (Principles of Accounting, 4 credits per quarter).

English: A-B-C (Freshman English, 15 credits) or 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits)

History: 70-71-72 (English Constitutional History, 9 credits)

Humanities: 1-2-3 (Humanities in the Modern World, 15 credits)

Philosophy: 1A, 2A, 3A (Selected Problems of Philosophy, Logic, Ethics, 9 credits) or 1, 2, 3 (Problems of Philosophy, Logic, Ethics, 15 credits)

Political Science: 9-10 (Fundamentals of Government and Politics, 6 credits), or 15 (Elements of Political Science, 3 credits) and 7 (Comparative European Government, 3 credits); 25 (World Politics, 3 credits)

Psychology: 1-2 (General, 6 credits)

Electives to make the total at least 90 credits. Foreign language (0 to 20 credits, according to the schedule given on page 10), natural science (10 or 15 credits as indicated on page 10), and Public Health 3 (Personal Health, 2 credits) should be included in these electives by students taking the combined course leading to the degrees of bachelor of arts and bachelor of laws which is outlined below. Such students may take Philosophy 50 and 52 (courses in the general history of philosophy) instead of Philosophy 1 and 3. Other suggested electives are: English History or Civilization of the Modern World, Modern Philosophies of Social Reform (Philosophy 70), and other courses in Anthropology, Economics, Political Science, Sociology, and Speech.

It is recommended that the two years' work be distributed as follows:

First year—Composition 4f-5w-6s (9 credits) or English Af-Bw-Cs (15 credits) or Communication 1-2-3 (9 credits); Philosophy 2Af-1Aw-3As (9 credits); Humanities 1f-2w-3s (15 credits) or Political Science 15f, 7w, 25s (9 credits); History 4f-5w-6s (English History, 9 credits) which is not required but is recommended as an elective course in preparation for English Constitutional History.

Second year—Economics 6f-7w, 27s (15 credits); History 70f-71w-72s (9 credits); Psychology 1f-2w (6 credits); Humanities or Political Science not taken in the first year; elective courses to make a total of 90 credits for the two years' work.

Military and GED credits—The Law School, in accordance with a ruling of the Association of American Law Schools, will not accept for admission more than 12 quarter credits for military training *as such*.^{*} Veteran students are encouraged not to make use of GED credits at all, and, in any event, the Law School will normally not recognize more than 18 GED credits.

COMBINED COURSES IN ARTS, BUSINESS ADMINISTRATION, AND LAW

There are three of these combined courses, two in Arts and Law and one in Business Administration and Law.

With respect to the degrees mentioned in the two combined courses in Arts and Law, the bachelor of arts degree is conferred on recommendation of the College of Science, Literature, and the Arts. Two degrees are conferred on recommendation of the Law School, a nonprofessional degree, bachelor of science in law, and the professional degree, bachelor of laws. The normal courses for these degrees are as follows: Students who have a B.A. or equivalent degree when they enter the Law School may qualify for the professional degree, bachelor of laws, in three years. Students who do not have a degree when they enter the Law School first register for the degree of bachelor of science in law for which the course is two years. Students who have earned the degree of bachelor of science in law with an average grade of 73 or better may qualify for the professional degree, bachelor of laws, in two years.

SIX-YEAR COMBINED COURSE IN ARTS AND LAW LEADING TO THE DEGREES OF BACHELOR OF SCIENCE IN LAW§ AND BACHELOR OF LAWS§

This course requires two years of college work and four years in the Law School. Students who complete the two years of college work required for admission to the Law School, stated above, in the College of Science, Literature, and the Arts of this University, or in some other accredited college, and have 90 credits, exclusive of quality credits, with a scholarship average of C for all courses taken, become eligible for the

^{*} Military credits as such are credits earned in service schools or in schools under service contract for which there are no comparable courses in the College of Science, Literature, and the Arts except ROTC or NROTC courses.

§ From the Law School.

degree of bachelor of science in law on completion of two years in the Law School. Law work may be selected to suit the needs of the student, and may be restricted to commercial law for students desiring a preparation for business. Students completing this course may register for the degree of bachelor of laws under the conditions previously stated, and may thus earn the two degrees in six years.

SEVEN-YEAR COMBINED COURSE IN ARTS AND LAW LEADING TO THE DEGREES OF BACHELOR OF ARTS[†] AND BACHELOR OF LAWS[‡]

This course requires three years of college work and four years in the Law School. The first two years of college work may be taken in any accredited college, but the third year must be taken in the College of Science, Literature, and the Arts of this University. All three years of college work may be taken before entering the Law School, or two years before entering the Law School, and the third year after the completion of one year or more of law work. The latter plan enables the student to select college work in which he may have become interested during his law course.

Students in this combined course must, before transferring to the Law School, complete the requirements for admission to the Senior College of the College of Science, Literature, and the Arts, stated on pages 9-11. The student must earn at least 90 credits with a scholarship average of C. This number of credits required may be reduced by application of the "quality credit" rules given on page 20. He must also earn, either before entering the Law School or after completing one year or more of the law course, 45 additional college credits, of which at least 30[†] must be in Senior College courses with a C average. This third year of work must be approved by the assistant dean for the Senior College of the College of Science, Literature, and the Arts.

The degree of bachelor of arts is conferred when the 135 credits of college work specified above and at least the first year of the course in the Law School, with the standing required by that school for graduation, are completed. The degree of bachelor of laws is conferred when the work of all seven years is completed.

SEVEN-YEAR COMBINED COURSE IN BUSINESS ADMINISTRATION AND LAW LEADING TO THE DEGREES OF BACHELOR OF BUSINESS ADMINISTRATION** AND BACHELOR OF LAWS[‡]

This program consists of two years of prelaw and prebusiness work as specified below, approximately one and one-half years in the School of Business Administration instead of the full two-year program, and three and one-half years in the Law School instead of the full four-year program, thus allowing the student to qualify for both the bachelor of business administration and the bachelor of laws degree in seven years.

The prelaw and prebusiness work must amount to 90 credits, exclusive of quality credits, and shall include the regular prelaw course^{††} except Economics 27 and in addition Economics 5 (Elements of Statistics) and Economics 22-23 (Principles of Accounting).

There are two options for the remaining five years:

- A. The first year exclusively in the Law School and the second year exclusively in the School of Business Administration, or vice versa. The third and fourth years exclusively in the Law School and the fifth year to be divided between the two schools, approximately half of the program being in each school.
- B. The distribution of both the business administration and the law course throughout the five-year program.

[†] Thirty is the number usually required. For some students it may be reduced by special permission of the assistant dean for the Senior College.

[‡] From the Law School.

^{††} From the College of Science, Literature, and the Arts.

** From the School of Business Administration.

^{††} See page 145 of this bulletin.

The course requirements in Business Administration include the general core group courses exclusive of Business Law (B.A. 51-52-53). This amounts to a total of 36 credits. Substitutes, such as Economics 185 for B.A. 77, B.A. 184 for B.A. 89, may be made with the approval of an adviser. The remaining courses—approximately 32 credits—may be elected from the Senior College courses in economics and business administration with the approval of an adviser.

The course requirements in the Law School include all the courses of the first and second years, the required courses of the third and fourth years, and electives sufficient with the required courses to make a total of approximately 68 credits in those years.

Students will be registered for the joint program in the Law School and the School of Business Administration throughout the five-year period. Their programs will be subject to approval of an adviser from the Law School and an adviser from the School of Business Administration

G. MEDICAL SCHOOL*

The principal courses offered by the Medical School are the following: Medicine, nursing, medical technology, physical therapy, and occupational therapy. Each affords training for a different profession and the requirements of each course should be read carefully.

1. COURSES LEADING TO THE DEGREE OF DOCTOR OF MEDICINE†

There are two eight-year courses of study which lead to the degree of doctor of medicine. Both require three full years of college work (135 credits exclusive of quality credits) which must include the courses prescribed for admission to the Medical School. In the first course the student may freely choose elective subjects to make up the total of 135 credits. He will receive the degree of bachelor of science after he completes two years of work in the Medical School. In the second of the two courses, the student must meet the requirements for admission to the Senior College of Science, Literature, and the Arts which he should enter, normally, after two years of residence in the Junior College. His program for the third year must be submitted for approval to the assistant dean for the Senior College. He will receive the degree of bachelor of arts after he completes satisfactorily one year of work in the Medical School.

Residence

First choice is given to native residents of Minnesota; second choice is given to residents of adjoining states which do not have medical schools; residents of states other than these will be admitted to the Medical School only under exceptional circumstances. The residence of applicants who make their homes in Minnesota subsequent to graduation from high school will be determined by the Board of Admissions of the University in so far as admission to the Medical School is concerned.

Program Plans

Because of the large number of applicants to the Medical School and the consequent high percentage of students failing to be admitted altho they may meet the minimum entrance requirements, *all* premedical students are urgently advised to plan their three

* For detailed information about the individual subjects of study in these curricula (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

† Students who desire to receive a college degree before entering the Medical School must include all of the required premedical subjects in the "Course Leading to the Degree of Bachelor of Arts" for which the requirements are stated on pages 9-13. They may find it to their advantage to take the course with an interdepartmental major rather than a major in one department. (See page 12.)

years of premedical work in such way that, in case they are not admitted to the Medical School, they may still proceed toward a degree in some other college without undue loss of time. They should consider this possibility from the first quarter of their registration in the University.

EIGHT-YEAR COURSE IN SCIENCE AND MEDICINE LEADING TO THE DEGREES OF BACHELOR OF SCIENCE,¶ BACHELOR OF MEDICINE,¶ AND DOCTOR OF MEDICINE¶

The minimum requirements in order to be considered for admission to the Medical School are three full years of college work, amounting to 135 credits,§ with a scholarship average of C. At the present time, because of the large number of applicants, few are accepted whose average is less than a very high C or B.

The premedical work, for which the student is registered in the College of Science, Literature, and the Arts, must include the required courses listed below or their equivalent as approved by the Admissions Committee of the Medical School.

Required Courses

English A-B-C (Freshman English, 15 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement. Composition 4-5-6 (9 credits) will be accepted as meeting part of this requirement when supplemented by additional credits in English composition or speech to make the total at least 12 quarter credit hours.

Zoology 1-2-3 (General Zoology, 10 credits) and Zoology 83 (Introduction to Genetics and Eugenics, 3 credits)

Chemistry—Inorganic Chemistry 1-2, 11 or 4-5, 11 or equivalent (Inorganic Chemistry, 12 credits); Analytical Chemistry 7 (Quantitative Analysis, 4 credits); Organic Chemistry 61-62 (Elementary Organic Chemistry, 8 credits); and Physical Chemistry 107-108 (Elementary Physical Chemistry, 6 credits)

Mathematics—as a prerequisite for physics: Course 1 (Higher Algebra, 5 credits) unless the student has had high school higher algebra; Course 15-16 Elementary Mathematical Analysis, 10 credits) or equivalent

Physics 4-5-6 (General Physics, 15 credits)

Psychology 1-2 (General Psychology, 6 credits)

Social Science, 12 credits and Humanities, 9 credits. This is a requirement in general studies at the Junior or Senior College level. Sequences in humanities, social sciences and philosophy (including logic) are acceptable.

Elective Courses

In choosing his electives the premedical student should avoid random sampling of elementary courses. The Admissions Committee will show preference for the applicant who has displayed a well-developed interest in and aptitude for a special field of knowledge.

Humanities and Social Sciences: Prospective applicants normally are encouraged to concentrate their electives in this area and they should devote at least 18 quarter credits to a major sequence in one of the following departments: Anthropology, child welfare, classics, composition, economics, English, history, history of art, humanities, philosophy, political science, psychology, social science, sociology, biostatistics.

Physical and Biological Sciences: It will be unusual for the student who takes the minimum of premedical work to devote many elective credits to botany, chemistry, geology, mathematics, physics or zoology. However, where an applicant has a special interest in such a science he may use his electives in that area. He would do well to arrange his program with the help of advisers recommended by the Medical School.

§ The following quotation from the *Bulletin of the Medical School* applies to students who do their premedical work here. "The total number of credits for admission to the Medical School required of students who do their premedical work at Minnesota may, at the discretion of the Admissions Committee, be diminished in the case of superior students, under the quality credit rule of the College of Science, Literature, and the Arts. Required courses may not be omitted without the approval of the Admissions Committee of the Medical School."

¶ From the Medical School.

Foreign Languages: Although a reading knowledge of a modern foreign language is not a requirement for admission, competence in at least one foreign language is exceedingly important for those individuals who may become interested in *medical research* or in *graduate training in medicine*. It is recommended that such students devote a minimum of 20 or their elective credits to German, French or another appropriate modern foreign language.

Most students benefit from a fourth year of general or specialized education before they enter upon the medical course. This longer period of preparation is encouraged by the Admissions Committee of the Medical School.

For admission to the Medical School, a candidate's record must show a number of honor points at least equal to the total number of credits in the group of required subjects; also a number of honor points at least equal to the total number of credits in all subjects. A higher average is exacted of nonresident applicants. Applicants are required to take a battery of tests for premedical students given by the Student Counseling Bureau. The scores on these tests are considered by the Admissions Committee in advising students and determining admission. A student applying for admission should file credentials at least nine months before the admission date of the class for which he applies. An application blank may be obtained by addressing the assistant dean of the Medical School and *at the time of filing this should be accompanied by a transcript of the applicant's college credits up to the date of application*. All admissions are subject to the limited registration regulations of the Medical School.

The work which is credited as the fourth year in candidacy for the degree of bachelor of science is taken in the Medical School. To earn this degree, a student must have completed the first two years of the medical course with a C average.

Students who have completed elsewhere three or more years of collegiate or university work which includes the required subjects specified above and which is in other respects the full equivalent of the three years of academic work required in this eight-year course will be awarded the degree of bachelor of science on recommendation of the faculty of the Medical School, provided they meet the scholarship requirements stated above.

The foregoing regulations governing the quality and amount of premedical training required for admission to the Medical School will apply for those who present the minimum amount of work. In cases of mature and superior students, especially those who have taken degrees and have a record of outstanding accomplishment in some special area of education (even tho it may not have been closely related to medicine), concessions may be made. Such cases will be considered individually by the Admissions Committee upon petition to the dean of the Medical School.

A broad, general education is considered fundamental to medical study, but no student can pursue the medical course to advantage without adequate knowledge of biology, chemistry, and physics. Therefore, no substantial amount of the credits required in these pre-medical subjects is likely to be waived by the Admissions Committee.

EIGHT-YEAR COURSE IN ARTS AND MEDICINE, LEADING TO THE DEGREES OF
BACHELOR OF ARTS,† BACHELOR OF MEDICINE,§ AND
DOCTOR OF MEDICINE¶

During the first three years of this course, the student is registered in the College of Science, Literature, and the Arts, subject to the regulations of the college, and must earn at least 135 credits, with a scholarship average of C. (This number of credits may

† From the College of Science, Literature, and the Arts.

§ From the Medical School.

¶ Only students who have completed the required work in the College of Science, Literature, and the Arts before entering the professional school will be permitted to avail themselves of the privilege of securing the B.A. degree in this combined course.

be reduced* by application of the "quality credit" rules given on page 20.) At least 30 credits** must be in Senior College courses. He must complete the requirements for admission to the Senior College, given on pages 9-11 and also the work in chemistry, mathematics, physics, psychology, zoology, and foreign language prescribed for the eight-year course in Science and Medicine (page 149).††

During his third year, the student elects work in this college subject to the approval of the assistant dean for the Senior College. The first year of the course in the Medical School, when completed with the standards required by that school, counts as the equivalent of the fourth year (45 credits) of the Arts course.

For admission to the Medical School, a student's record must show a number of honor points at least equal to the number of credits in the group of required subjects; and also a number of honor points at least equal to the total number of credits. A higher standard is exacted of nonresident applicants. All admissions are subject to the limited registration regulations of the Medical School.

2. COURSE PRELIMINARY TO NURSING EDUCATION AND PUBLIC HEALTH NURSING IN THE COLLEGE OF EDUCATION AND IN THE SCHOOL OF PUBLIC HEALTH††

For the first five quarters of the degree curriculum in basic professional nursing the student is registered in the College of Science, Literature, and the Arts. The curriculum is planned to prepare the student not only for bedside nursing but also for administrative, supervising, and teaching positions in schools of nursing and hospitals; for such public health nursing positions as visiting nursing, school nursing, health teaching, infant welfare, rural and industrial nursing; and for combined positions in secondary schools involving both nursing and teaching. This curriculum is open to high school graduates who meet the entrance requirements of the College of Science, Literature, and the Arts.

Curriculum—The curriculum is divided into three parts as follows:

- Part I Five quarters in the College of Science, Literature, and the Arts either in the University of Minnesota or some other accredited university or college.
- Part II Ten quarters in the School of Nursing (first quarter on the campus, and nine quarters in clinical divisions). (See *School of Nursing Bulletin*.)
- Part III Three quarters in the College of Education or in the School of Public Health.

Part I—College of Science, Literature, and the Arts (Five Quarters)

During the first five quarters the student must complete 75 credits exclusive of physical education and enough of the required courses listed below so that all required courses will be completed by the end of the sixth quarter (first quarter in the School of Nursing). She must earn an average of one honor point per credit for all credits earned in the prenursing period.

A. Required courses

- English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement
- Chemistry 1-2, 4-5, or 6-7 (Inorganic Chemistry, 8 or 10 credits)
- Zoology 14-15 or 1-2-3 (General Zoology, 10 credits or 6 credits)
- Sociology 1 (Introduction to Sociology, 5 credits)
- Sociology 49 (Social Problems, 3 credits)
- Psychology 1-2 (General Psychology, 6 credits)
- Child Welfare 40 or Home Economics Education 90 (Child Training, 3 credits)

* For a statement about "quality credits" and admission to the Medical School, see the § footnote on page 149.

** Thirty is the number usually required. For some students it may be reduced by special permission of the assistant dean for the Senior College.

†† For recommended electives and the restrictions governing them, see page 149.

††† This program requires five school years but actually only four and three-fourths calendar years.

Public Health 3 (Personal Health, 2 credits)
 Anatomy 4 (Elementary Anatomy, 5 credits)
 Physiological Chemistry 50 (Physiological Chemistry, 4 credits)
 Physiology 60 (Human Physiology, 6 credits)
 Bacteriology 53 (General Bacteriology, 5 credits) or Bacteriology 101-102 (Medical Bacteriology, 9 credits)
 Home Economics 30 or 31 (Introduction to Nutrition, 2 or 3 credits) or
 Nursing 10 (Introduction to Nutrition, 1 credit)
 Physical Education (5 credits)

B. Elective courses—Choice of electives to make up the required total of 75 credits should be made on the basis of the individual's special interests and planned field of specialization. Nine credits of social science, including one course in political science, other than sociology are required for students who major in public health nursing and are strongly recommended for all prenursing students. These social science courses may be selected from history, political science, economics, or introduction to social science. Other recommended electives are courses in anthropology, child welfare, general studies, philosophy, physics, sociology, speech, and zoology.

C. Advisers from the School of Nursing faculty are assigned to prenursing students in the College of Science, Literature, and the Arts. Before registering each quarter, students should have their programs reviewed by their adviser in the School of Nursing, Room 116 Millard Hall.

Students from other universities or colleges should, as a rule, transfer to the University of Minnesota at the end of their first academic year if they wish to complete the degree curriculum in the minimum time. Students may, however, transfer at any point in the prenursing program. Those who wish to complete all prenursing requirements before transferring to the University of Minnesota may do so provided they complete sufficient required courses as listed above. These students should confer with the Office of Admissions and Records early to ascertain their exact standing. They are urged to consult with the School of Nursing at the end of their freshman year.

A suggested two-year program follows: The choice of electives and sequence of courses may be varied in accordance with the individual needs and interests of the students. See B, Elective courses, above.

First Year

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 4f or Af or Communication 1f Chemistry§ 1f or 4f or 6f§ Zoology 14f or 1f Public Health 3f Physical Education Electives*	English 5w or Bw or Communication 2w Chemistry 2w or 5w or 7w Zoology 15w or 2w Physical Education Electives*	English 6s or Cs or Communication 3s Sociology 1s Zoology 3s Anatomy 4s Physical Education

Second Year

<i>Fall</i>	<i>Winter</i>	<i>Spring (Part II)</i> (School of Nursing—1st quarter)
Psychology 1f Physiol. Chem. 50f Bacteriology 53f Physical Education Electives*	Psychology 2w Child Welfare 40w or Home Economics Ed. 90w Home Economics 31w Sociology 49w Physical Education	History of Nursing 1s Nursing 12s Physiology 60s Pharmacology 8A Electives*

* Electives should be chosen to make, on the average, a program of 15 credits per quarter in addition to physical education.

§ It is recommended that students who have not had a laboratory science in high school postpone Chemistry until the winter quarter of their freshman year.

3. COURSE IN MEDICAL TECHNOLOGY

The Course in Medical Technology is a four-year course given in the College of Science, Literature, and the Arts and in the Medical School. The degree of bachelor of science is awarded upon completion of the prescribed curriculum.

The first two years are spent in the College of Science, Literature, and the Arts. After completing 90 credits including the required courses with a C average, the student is eligible for admission to Medical Technology (that is, for registration in the Medical School). For every five honor points in excess of the number necessary for a C average, the number 90 is diminished by one. The entire fourth year (twelve months) is spent in a rotating practical service in the laboratories of the University Hospitals.

The following courses or their equivalents are prerequisites for admission to the junior year :

English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement

Chemistry 1-2-11 or 4-5-11 (General Inorganic Chemistry and Semimicro Qualitative Analysis, 12 credits); Analytical Chemistry 7 (Quantitative Analysis, 4 credits); Organic Chemistry 61-62 (Elementary Organic Chemistry, 8 credits)

Zoology 1-2-3 (General Zoology, 10 credits) and Zoology 21 (Histology, 5 credits)

Anatomy 4 (Elementary Human Anatomy, 5 credits)

Physics 1-2-3 (Introduction to Physical Science, 9 credits)

Bacteriology 53 (General Bacteriology, 5 credits) or Bacteriology 101 (Medical Bacteriology, 5 credits)

Electives. There is no essential limitation to the subjects which may be chosen as electives. However, it is advised that in the first two years the student elect introductory courses in subjects which she expects to continue in her junior year. A program that includes scattered electives will not be approved. Recommended electives are listed in the *Bulletin of the Course in Medical Technology*.

The *Bulletin of the Course in Medical Technology*, which may be obtained at the Office of Admissions and Records, contains a suggested program for the first two years. For further information the student should consult special advisers in the Medical Technology office, M-519 University Hospitals, telephone: Main 8551, extension 292.

Advisers—All students in this course should consult advisers in the Medical Technology office, M-519 University Hospitals. Registration each quarter should be reviewed by one of these advisers

X-Ray Training

Students completing the requirements of the Course in Medical Technology have the opportunity without further payment of fees to spend an additional six months of practical training in the X-ray laboratory of the University Hospitals. At the satisfactory completion of this training the student will receive a certificate of proficiency in X-ray Technology.

Arrangements for this training should be made at the Medical Technology office, M-519, University Hospitals.

4. COURSE IN PHYSICAL THERAPY

The Physical Therapy Course is a four-year course leading to a bachelor of science degree in physical therapy. The first two years are spent in the College of Science, Literature, and the Arts during which time the studies are mainly in the basic sciences. The last two years are spent in the Medical School, Division of Physical Therapy. For more detailed information see the *Physical Medicine Bulletin* or write to Physical Medicine Division, W-300 University Hospitals, University of Minnesota, Minneapolis 14, Minne-

sota. All students who are pursuing this course in the University of Minnesota should consult with the Physical Therapy adviser in Room W-300 University Hospitals. Registration each quarter must be reviewed by this adviser.

A graduate of this course is prepared to carry out techniques, under a physician's directions, applied to the following branches of physical therapy: hydrotherapy, thermotherapy, light therapy, electrotherapy, and mechanotherapy (therapeutic exercises). Graduates of this course are eligible to become registered physical therapists.

Required Courses for Junior College

Freshman Year

- English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement
- Zoology 1-2-3 (General Zoology, 10 credits)
- Physics 1-2-3 (Introduction to Physical Science, 9 credits) or Physics 1a-2a-3a (Introduction to Physical Science, with laboratory included, 12 credits) or Physics 4-5-6 (General Physics, 15 credits)
- Public Health 3 (Personal Health, 2 credits); Public Health 4 (Health Problems of the Community, 2 credits)
- Humanities 1-2-3 (Humanities in the Modern World, 15 credits) or History 1-2-3 (Civilization of the Modern World, 9 credits) or Sociology 1,2 (Introduction to Sociology and Intermediate Sociology, 10 credits) or Pol.Sci. 1-2-3 (American Government and Politics, 9 credits) or G.E.D. Social Science test

Sophomore Year

- Chemistry 1-2 (General Inorganic Chemistry, 8 credits) or Chemistry 4-5 (General Inorganic Chemistry, 8 credits) or Chem. 6-7 (General Inorganic Chemistry, 10 credits) or Chemistry 9-10 (General Inorganic Chemistry, 10 credits)
- Psychology 1-2 (General Psychology, 6 credits)
- Bacteriology 53 (General Bacteriology, 5 credits)
- Child Welfare 40 (Child Training, 3 credits) or Child Welfare 80 (Child Psychology, 3 credits)
- Anatomy 3 (Elementary Anatomy, 4 credits) or Anatomy 4 (Elementary Anatomy, 5 credits)
- Nursing 2B (Introduction to Patient Care for Physical Therapists, 1 credit)

5. COURSE IN OCCUPATIONAL THERAPY

The Course in Occupational Therapy is a program of four academic years plus one quarter which is given in the College of Science, Literature, and the Arts and in the Medical School. The degree of bachelor of science in occupational therapy is awarded upon completion of the prescribed curriculum.

The first two years are spent in the College of Science, Literature, and the Arts. After completing 90 credits and the required courses of the first two years with a high C average, the student is eligible for admission to the Course in Occupational Therapy in the Medical School. Nine months are spent in clinical training in various types of hospitals and institutions for the sick and the handicapped during the last year.

The following courses or their equivalents are prerequisites for admission to the junior year:

- English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or exemption from the requirement
- Zoology 1-2-3 (General Zoology, 10 credits)
- Public Health 3 (Personal Health, 2 credits)
- Psychology 1-2 (General Psychology, 6 credits)
- Sociology 1 (Introduction to Sociology, 5 credits)
- Humanities 1,2,3 (Humanities in the Modern World, 15 credits)
- Anatomy 3 (Elementary Anatomy, 3 credits)
- Bacteriology 1 (Elements of Bacteriology, 4 credits)
- Art 1 (Introduction to Art, 4 credits)
- Art 4-5 (General Design, 6 credits)
- Art 20-21 (Drawing and Painting I, 4 credits)

Art 43-44-45 (General Crafts: Materials and Techniques, 9 credits)

Art 76-77-78 (Textile Design Weaving, 9 credits)

Occupational Therapy 1 (Orientation, 1 credit)

Physical Education

Electives to make a total of at least 90 credits

For more detailed information the student should consult a special adviser in the Occupational Therapy office, 104 Temporary Building West of Hospitals, telephone: Main 8177, extension 6610.

Advisers—All students in this course should consult a special adviser in the Occupational Therapy office and have their program reviewed each quarter. This applies to students who are still in the College of Science, Literature, and the Arts.

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