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UNIVERSITY of MINNESOTA

The College of Science, Literature, and the Arts
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OFFICERS OF ADMINISTRATION
of the
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

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American Studies, Tremaine McDowell (on leave)
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Botany, A Orville Dahl (8 Botany Building)
Classics, John L. Heller (118 Folwell Hall)
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Geological Survey, George M. Schwartz (207 Pillsbury Hall)
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Zoology, Dwight E. Minnich (108 Zoology Building)

How To Use This Bulletin

This bulletin will answer most of your questions concerning the College of Science, Literature, and the Arts. Its Table of Contents gives an overview of the organization of these answers. Every beginning student, before attempting to register, should study carefully Section I which gives an Introduction to the College and the Programs of the College. An understanding of these purposes and programs is essential if the student is to receive the full benefit of his educational opportunity. A brief description of each Junior College course, as well as an outline of the requirements for majoring in each department, is included in Section II. Section III presents the Junior College programs which are prerequisite for transfer to various professional schools after two or three years.

All students will find the full index at the end of this bulletin an invaluable source of reference. Whenever a student addresses a question about the college to a member of the faculty, the reply is, "Have you looked it up in the bulletin?" Be sure your answer is "Yes." It is important, therefore, to read the bulletin to become generally familiar with the college programs and regulations; you should also keep it at hand for ready reference when specific problems arise.

The *Combined Class Schedule*, another University bulletin, lists the hours, days, and rooms for courses. This information is necessary for the final scheduling of classes, the last step in planning a program. At the time of registration it will be necessary to use both the *Combined Class Schedule* and this bulletin.

The *New Students' Handbook* is a valuable description of the University's student personnel services and the extraclass learning opportunities of the campus. Your knowledge of the university community in which you work and play is not complete without the information of this bulletin. The *General Information Bulletin* likewise contains much important information about the University as a whole.

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

Section I

GENERAL INFORMATION

A. INTRODUCTION TO THE COLLEGE

1. 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:

a. **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 taken from the Minutes of the University Senate, May, 1944.

b. **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.

c. **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.

d. **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.

2. 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 pre-professional 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.

3. STUDENT PERSONNEL SERVICES

Faculty counselors—Every student in the college is given 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 at any time 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.

a. Junior College students in the following curricula should be sure that they are assigned to counselors who are members of the appropriate departments: Fine Arts and related fields, Journalism, Social Work, Medical and X-Ray Technology, Nursing, Occupational Therapy, and 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) A senior college student is normally assigned to a major adviser who helps him plan his work during the junior and senior years. This assignment is made 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 any records from the office of admissions and records indicating credit already earned at this University or elsewhere.

University personnel services—In addition to faculty counseling within the college, the student is invited to use the several specialized personnel services provided for all students by the University. 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 Employment Bureau, 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.

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; in fact, they ask specifically for non-specialists. 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.

4. 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 thousands 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 vocational 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, by consulting the *Combined Class Schedule*, 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 p. 9). 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 program consultants in Room 131 Coffman Memorial Union, as well as faculty counselors, will be glad to assist in this selection.

B. PROGRAMS OF THE COLLEGES

1. JUNIOR COLLEGE PROGRAM 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.

a. **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.

Normally these group requirements should be completed during the two years of Junior College, leaving the Senior College years for fulfilling a major sequence and achieving a still stronger general and liberal education. In unusual 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.

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 (9 credits) or exemption from the requirement. All students are required to take a placement test before registering for one of these courses. (See p. 58.)

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 1f-2w-3s (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 (9 credits) or exemption from the requirement. All students are required to take a placement test before registering for one of these courses. (See page 58.)
- 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 Psych. 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.‡
- 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 the departments of history, mathematics, and psychology may be counted in either of two groups but not in both.

b. **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.

* 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.

c. **Credits required**—For entrance into the Senior College, a student must normally earn a total of at least 90 credits with a scholarship average of C. Some of these credits may be "quality credits" as explained on page 19. A student entering with advanced standing from some other institution must complete the same requirement and earn a C average for work done in this University. For purposes of entrance into Senior College, honor points are not assigned to credits earned in other institutions or through tests.

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 this transfer at the proper time, the assistant dean for the Senior College may, upon application, modify the above requirements with the understanding that they will be fulfilled later. A student should apply for entrance into the Senior College early in the term 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 copy of his previous record with him when he applies. The requirement of a C average may also be temporarily waived under certain circumstances, tho any such deficiency must be made up before graduation.

Junior and Senior College courses—Credit in Senior College courses earned while the student is still in Junior College may be counted toward meeting Senior College requirements for graduation. Junior College credits in excess of 90, earned in Junior College courses while in the Junior College, may be applied to the 90 credits required in the Senior College only if the student completes at least 60 credits in Senior College courses.

2. PROGRAMS IN THE SENIOR COLLEGE

a. **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 specified 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 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, Astronomy, Bacteriology, Biostatistics, Botany, Chemistry, Classics, Economics, English, Fine Arts, 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 15 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 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. They include the following combinations:

- (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.

b. Credits required—The student normally must earn 90 credits with a C average while in the Senior College. Thus he will 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.

c. Major adviser—The student will be assigned a major adviser who will help him work out his Senior College program. When this program has been approved by the major adviser and the assistant dean for the Senior College, it becomes an agreement between the college and the student, and no change in it may be made without the written permission of the adviser and the assistant dean for the Senior College.

d. 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.

3. 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 the Arts 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 Arts College 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. Only through the wide variety of courses offered in Science, Literature, and the Arts can the future doctor, lawyer, or businessman 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 Arts 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 Arts College programs prerequisite to various professional schools are described in Section III of this bulletin.

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

Some students are not sure whether they can stay in 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 earned 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 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 9 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

1. 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 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 are defined below.

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 admission 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 19) 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 college 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. Any failures earned in other colleges of this University are transferred also, and such deficiencies must be made up. General College grades are evaluated like grades from another institution.

Any student upon first registration at the University may, with the approval of the chairman 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.

Veterans may take G.E.D. tests (see p. 19) 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.

Adult special students—Mature persons (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. Since they are not candidates for degrees, they are exempt from the usual college requirements 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.

Admission of veterans—Special procedures applying to the admission of veterans are described in detail in the *Bulletin of General Information*. Veterans will profit from reading those instructions carefully.

2. 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 must 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. Time and place of class meeting must be determined from the *Combined Class Schedule* available at the information window, Administration Building, and the closed section information posted in the first floor hallway of Folwell. In most cases 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. 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 in parentheses after the course description. Other courses require the special permission of the Students' Work Committee. A request for such permission, presented at the office of the assistant dean for the Junior College in 106 Folwell, 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 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 Advisory Committee of this college approve the courses as suitable for such election; and (2) no duplication of subject 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 Student's Work Committee, but credits in those courses will be counted as credits in this college only 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 to Room 106 Folwell for tallying.

The addition of new courses is normally not permitted after the first week of class, and cancellation does not normally occur after the second week of classes. Any subsequent changes must be approved by the assistant dean for students' work in 219 Administration Building. After the sixth week of classes, cancellation of a course in which a student is failing is normally recorded as cancellation with F. Cancellation is not permitted during the last two weeks of classes except under most unusual circumstances.

Audited courses—Any mature person not a regular student may be admitted to classes as an auditor and may hear lectures and class discussions without doing the work of the course, subject to the following conditions:

- a. He must get an auditor's card at the office of the dean of the college (219 Administration Building) and on it get the written approval of the instructor in charge of the course, and of the dean.
- b. He must present this card to the recorder and pay the usual fee charged for regular membership in the course.

Registration as an auditor does not entitle him to participate in the activities of the class or to take the final examination.

Any Senior College student may register as an auditor under the same regulations, with this understanding—that unless he has at least a B average, the courses for which he registers both as regular student and as auditor must not exceed the permissible maximum of 17 or 18 hours. If he has a B average he may register as an auditor for an additional three-credit course.

Courses without credit—A 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. This arrangement is particularly useful for students wishing to repeat a course as a review.

Repeating a course—A student may repeat a course which he has failed without special permission, 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 except to raise a D in a fundamental course, and then only

under unusual circumstances. In this case the second grade usually stands if it is a B, and the earlier grade and credit are cancelled.

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 high school units and more than a total of 12 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 has credit without permission of the Students' Work Committee.

3. 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. There 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. The blanks should then be left at the office of the assistant dean for students' work, 219 Administration Building. 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. 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 24.)

The grade F (failure) is given for work which in the opinion of the instructor is not deserving of 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 required 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 in the year 1942-43 or thereafter.

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—For every five honor points in excess of the number required for a C average, a student will receive one quality credit. In this way, the number of credits he must take is diminished by one. This does not modify in any way the completion of specific required courses. Quality credits may be earned only on work in this University (exclusive of General College).

Quality credits may be used to reduce the total number of credits to be earned for admission to Senior College, 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. In the Senior College, quality credits may be earned only in Senior College courses.

The above procedures are available to veterans and students other than beginning freshmen in residence during fall quarter, 1946-47.

Except for veterans, any students who enter or return to the University after August, 1946, may apply toward a Bachelor's degree from this college only those quality credits earned prior to the accumulation of 84 total credits—including quality credits.

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 assistant dean for students' work for a special examination. If approved, the examination will be given by a committee appointed by the assistant dean for students' work. Unless the Students' Work Committee directs otherwise, the fee for such examination will be \$5.

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 assistant dean for students' work 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.

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:*

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

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

- a. He satisfies the general requirements above, and
- b. He has a scholarship average of 2.25 or above in all his work and in his Senior College courses averaged separately, and

* 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.

- c. 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
- d. 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 average 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

- a. Acquaintance with the chief literature and sources of information in his major field.
- b. 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.
- c. Capacity for self-education as indicated by his curiosity about subjects of general interest and his voluntary attempt to inform himself concerning them.
- d. 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.

Class attendance—The student in this college has a very definite responsibility for class attendance. The faculty states that no absence without good reason is 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.

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 office of the assistant dean for the Junior College, 106 Folwell Hall.

Satisfactory progress—A student in this college is expected to make satisfactory progress in the curriculum he has selected. With the exception of those students who are candidates for the A.L.A. 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.

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

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

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

- a. He is below a passing grade in 40 per cent of his work.
- b. In two quarters' residence he fails to make an average of three-fourths honor point per credit.

Exclusion from college—Students excluded from this college shall be recorded as (a) transferred, (b) discontinued, (c) dropped.

a. *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.

b. *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.

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

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

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

b. 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 must present satisfactory evidence that they have been employed in an occupation demanding intelligence and responsibility or have successfully pursued subjects 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.

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.

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.

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:

- a. 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.
- b. He will be assigned to a Senior College adviser and must complete all the Senior College studies under the direction of the adviser.
- c. 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.

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.

4. FEES

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)	10.65
Matriculation deposit† (first quarter only)	5.00
Special fees	
Fees for individual courses are specified in the course announcements (See <i>Combined 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 1947-48. Prior to the opening of the fall quarter, a *Combined Class Schedule* will be published giving any corrections and listing the hours and 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 and 99 appear in the announcement as open to "juniors and seniors" while those numbered between 100 and 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

Major advisers in the College of Science, Literature, and the Arts—Professors 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 the Curriculum in Liberal Arts which are stated on page 11. 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; Fine Arts 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 American Studies 21-22-23, "American Life," or American Studies 71-72-73, "Humanities in the United States.")

Junior College Courses

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| 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 (the same as Humanities 21) (3 cred.; no prereq.) |
| 22w | American Life II. The growth and interrelation of individualism and democracy, with particular attention to the status of minorities (the same as Humanities 22) (3 cred.; no prereq.) |
| 23s | American Life III. The place in American civilization of work, the pursuit of happiness, the good life: their implications and interrelations (the same as Humanities 23) (3 cred.; no prereq.) |

Senior College Courses

- 71f-72w-73s Humanities in the United States. This course is similar to American Studies 21-22-23, except that it is confined to juniors and seniors (The same as Humanities 71-72-73) (9 cred.; jr., sr.; no prereq.)
- 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)

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)

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.)
- 4s Elementary Anatomy (5 cred.; primarily for 5-yr. nurses and medical technologists; no prereq.)

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, 41, 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.)
- 41w Introduction to Anthropology. Culture areas and culture traits (5 cred.; no prereq.)
- 42s The Growth of Cultures. 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.)

Senior College Courses

Courses 54, 56, 80, 81 are open to sophomores who have a grade of at least C in Courses 40, 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 25.

- 54f Social Organization. An analysis and survey of forms of social life (3 cred.; jr., sr.; no prereq.)
- 56f Primitive Science. The beliefs and knowledge of primitive man (3 cred.; jr., sr.; no prereq.)
- 80s The American Indian. A survey of native cultures of the New World. Physical and cultural characteristics (3 cred.; jr., sr.; no prereq.)

- 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.)
- 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*)
- 106w European Prehistory (3 cred.; jr., sr., grad.; no prereq.)
- 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)
- 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.)
- 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*)
- 118f Indian Civilizations of Mexico and Peru (3 cred.; jr., sr., grad.; no prereq.)
- 119s 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.)
- 120 *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.) (*Not offered*)
- 122f-123w-124s Problems in Anthropology (Cred. ar.; jr., sr., grad.; prereq. permission of instructor)
- 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-131w-132s* Races and Cultures of Arabia, Egypt, and North Africa. Course 130: Pre-Muslim Culture. Courses 131, 132: Muslim Culture (9 cred.; jr., sr., grad.; no prereq.)
- 133f-134w* Races and Cultures of the Far East. This course will focus on the growth of native civilization in China and Japan. Attention will be given also to the cultures of Mongolia, Tibet, Korea, and southeastern Asia, especially in their relation to the Chinese (6 cred.; jr., sr., grad.; no prereq.)
- 135-136-137 *Cultural History of Egypt from the Earliest Times to the Sixteenth Century A.D.* (The same as History 135-136-137) (9 cred.; jr., sr., grad.; prereq. permission of instructor and a B average in the student's major subject) (*Not offered*)
- 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.)
- 150-151-152 *Selected Readings in Ancient History*. Early cultures of the Mediterranean Basin (9 cred.; sr., grad.; prereq. consent of instructor) (*Not offered*)
- 161s 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.)
- 162w Peoples of Negro Africa. Physical types, social, political, and economic phases of the cultures of Negro Africa (3 cred.; jr., sr., grad.; no prereq.)
- 163w Ethnology of India. A survey of the primitive tribes, Hindu caste society, and Mohammedan communities in India (3 cred.; jr., sr., grad.; no prereq.)
- 165 *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.) (*Not offered*)
- 166w 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.)

* Students may enter any quarter.

§ This course may be taken for credit only once.

- 167f 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.)
- 168 *Ethnology of Australia*. Physical types and cultures (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 169 *Peoples of the South Seas*—A survey of the native cultures of the Pacific Islands (3 cred.; jr., sr., grad.; no prereq.) (*Not offered*)
- 170s 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.)

For Graduate Students Only

204f-205w-206s Seminar in Anthropology (3 cred. per qtr.; grad.)

AREA STUDIES

Purpose of the programs—Reflecting the increasing interest of students in world affairs, several programs in 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 Area Studies is an integrated course or group of courses in the social, political, economic, and aesthetic ideas and institutions of the area, supplemented by courses in geography, history, and language. For full information on these studies at both the undergraduate and graduate levels, one should consult the special bulletin entitled "Programs in 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 40-41	Introduction to Anthropology	(10)
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

Fine Arts 1	Introduction to Art	(3)
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 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), Lawrence D. Steefel (Russia), Harold S. Quigley (The Far East), and Emilio C. LeFort (Latin America), Alrik Gustafson (Scandinavia).

ART

Major adviser for all courses in Art in the College of Science, Literature, and the Arts—Professor Arnason.

This new department of Art embraces courses formerly offered in the departments of Architecture, Art Education, Drawing and Descriptive Geometry, and Fine Arts. Pending further reorganization of the department, the offerings and the majors are listed in the following manner.

ARCHITECTURE

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, DP-II, AD-II, 51-52-53, 57.

(Prerequisites: High school or college equivalent of Math. 1, Higher Algebra, and Solid Geometry; Physics 1-2-3; and courses 40¶, DP-I.

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.

Junior College Courses

Arch.1f-2w-3s Introduction to Architecture. Discussions and problems to inform prospective students regarding the nature of architecture as an art and a profession (3 cred.; open only to students intending to major in architecture; prereq. approval of major adviser)

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

- DP-If,w,s†‡ Drawing and Painting, Grade I. Studies in graphic expression dealing with simpler composition in line, form and color (6 cred., normally 2 cred. per qtr.; soph.; no prereq.)
- M-If,w,s†‡ Modeling, Grade I. Studies in plastic expression dealing with simpler compositions (6 cred., normally 2 cred. per qtr.; no prereq.)
- Arch.40f,w,s Graphic Representation. Projections, shades and shadows, perspective and other processes involved in architectural drawing (5 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 25.

- 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. (The same as Fine Arts 51-52-53) (9 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. (The same as Fine Arts 61-62-63) (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.)
- DP-IIf,w,s†‡ Drawing and Painting, Grade II. Studies in graphic expression dealing especially with composition in color (6 cred., normally 2 cred. per qtr.; soph., jr., sr.; prereq. DP-I.)
- DP-IIIf,w,s†‡ Drawing and Painting, Grade III. Studies in graphic expression dealing especially with composition based on the human figure (6 cred., normally 2 cred. per qtr.; jr., sr.; prereq. DP-II or equiv.)
- DP-IVf,w,s†‡ Drawing and Painting, Grade IV. Studies in graphic expression dealing especially with advanced figure composition and mural decoration (6 cred., normally 2 cred. per qtr.; jr., sr.; prereq. DP-III or equiv.)
- IHP-If† Illustration. Studies in graphic expression as applied to illustration (2 cred.; jr., sr.; prereq. DP-I or equiv.)
- IHP-IIw,s‡ Hand Print Processes. Studies in graphic expression as applied to engraving, etching drypoint, and lithograph (4 cred., normally 2 cred. per qtr.; jr., sr.; prereq. DP-I or equivalent.)
- M-IIIf,w,s†‡ Modeling, Grade II. Studies in plastic expression dealing especially with the human figure (6 cred., normally 2 cred. per qtr.; jr., sr.; prereq. M-I)
- AD-If,w,s††‡ Architectural Design, Grade I (10 cred., normally 5 cred. per qtr.; jr., sr.; prereq. 40)
- AD-IIf,w,s††‡ Architectural Design, Grade II (15 cred., normally 5 cred. per qtr.; jr., sr.; prereq. AD-I)

ART EDUCATION

GROUP A—DESIGN

Junior College Courses

- ArtEd.1f,w,2f,w,s,3s General Design. A discriminating 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. (For non-art education majors) (9 cred.; no prereq.)

Senior College Courses

- ArtEd.50Af,50Bw,50Cs‡ Introduction to Commercial Design (9 cred.; prereq. 6 cred. General Design and 6 cred. Basic Drawing or equiv., or permission of instructor)

† 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.

‡‡‡ Students may enter any quarter.

ArtEd.51f,w,s	Introduction to Industrial Design (3 cred.; prereq. 6 cred. General Design and 2 cred. Basic Drawing or equiv., or permission of instructor)
ArtEd.52Af,52Bw	Interior Design (6 cred.; prereq. 6 cred. General Design and 2 cred. Basic Drawing or equiv., or permission of instructor)
ArtEd.150w	Advanced General Design: Commercial Design and the Consumer (3 cred.; jr., sr., grad.; prereq. permission of instructor)
ArtEd.151f	Advanced General Design: Industrial Design and the Consumer (3 cred.; jr., sr., grad.; prereq. permission of instructor)

GROUP B—HANDCRAFTS

NOTE—Design either before or concurrent with craft courses is strongly recommended. ArtEd. 31, 32, and 33, 34, serve the needs of recreational leaders, social workers, camp directors, occupational therapists, hobbyists, elementary teachers, and other non-art specialists.

Junior College Courses

ArtEd.31f,s	General Handcrafts: Texture exercises, work in metal, wood, and clay (3 cred.; no prereq.)
ArtEd.32w	General Handcrafts: College, montage, mobiles, three dimensional compositions, combining materials (3 cred.; no prereq.)
ArtEd.33f,s	General Handcrafts: Paper, cardboard, papier mache, decorative papers, hand puppets, cords, belts, knitting, crochet, hooking cardboard weaving (3 cred.; no prereq.)
ArtEd.34w	General Handcrafts: Leather tooling, bookbinding, basketry, needlework, netting, cardweaving, etc. (3 cred.; no prereq.)

Senior College Courses

ArtEd.70Af,70Bw, 70Cs§††	Wood Sculpture and Carving (9 cred.; prereq. permission of instructor)
ArtEd.73Af,73Bw, 73Cs§††	Ceramics (9 cred.; prereq. 6 cred. General design or permission of instructor)
ArtEd.76f,w††	Textiles: Fundamental weaving (3 cred.; prereq. permission of instructor)
ArtEd.77f,w††	Textiles: Advanced weaving (3 cred.; prereq. permission of instructor)

NOTE ON WEAVING COURSES: In order that looms may be used to best advantage, students are expected to work on an average of 18 hours per week while their work is on looms. Hence Fundamental and Advanced Weaving (6 cred.) may be earned in one quarter or 3 cred. may be earned in half a quarter.

ArtEd.78s††	Textile Design: Weaving (3 cred.; prereq. permission of instructor)
ArtEd.79s††	Textile Design: Printing processes—tie-dye, batik, stenciling, silk screen, block printing, etc. (3 cred.; prereq. permission of instructor)
ArtEd.170Ef,w,s	Advanced Wood Sculpture and Carving (Cred. ar.; grad.; prereq. permission of instructor)
ArtEd.173Ef,w,s	Advanced Ceramics (Cred. ar.; grad.; prereq. permission of instructor)

GROUP C—DRAWING AND PAINTING

Junior College Courses

ArtEd.4f,w,s†,6f,w,s† 8f,s†	Basic Drawing: 4, Introduction to Materials, and Techniques (2 cred.; no prereq.); 6, Introduction to Still Life and Figure (2 cred.; prereq. 4 or equiv., or consent of instructor); 8, Introduction to Landscape and Figure (2 cred.; prereq. 4 or equiv., or consent of instructor)
ArtEd.23f,w,s†	Pictorial Composition (2 cred.; prereq. 6 cred. in drawing or permission of instructor)
ArtEd.24Aft,24Bw,† 24Cs§†	Water Color Painting (6 cred.; prereq. 6, 8, or equiv., or permission of instructor)
ArtEd.26Aft,26Bw,† 26Cs§†	Oil Painting (6 cred.; prereq. 6, 8, or equiv., or permission of instructor)

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

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

§ Students may enter any quarter.

ArtEd.28Af†,28Bw†, 28Cs‡	Advanced Drawing Techniques (6 cred.; prereq. 6, 8, or equiv., or permission of instructor)
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Senior College Courses

ArtEd.61f†	Figure Drawing and Painting (2 cred.; prereq. 12 cred. drawing or painting, or permission of instructor)
ArtEd.62w†	Portrait Drawing and Painting (2 cred.; prereq. 12 cred. drawing or painting, or permission of instructor)
ArtEd.63s†	Landscape Drawing and Painting (2 cred.; prereq. 12 cred. drawing or painting, or permission of instructor)
ArtEd.66Af†,66Bw†	Fashion Illustration (4 cred.; prereq. 4 cred. in Basic Drawing)
ArtEd.67Af†,67Bw†, 67Cs‡	Illustration for Advertising and Other Purposes (6 cred.; prereq. 12 cred. drawing or painting, or permission of instructor)
ArtEd.68Af†,68Bw†, 68Cs‡	Print Processes: Lithography, silk screen, block print, etc. (6 cred.; prereq. 12 cred. drawing or painting, or permission of instructor)
ArtEd.124Ef,w,s†	Advanced Specialized Drawing and Painting (Cred. ar.; grad.; permission of instructor)

DRAWING AND DESCRIPTIVE GEOMETRY

Junior College Courses

Draw.41f,w,s- 42f,w,s- 43f,w,s	Technical Drawing. (a) General course in the theory and practice of freehand drawing. Principles of perspective, sketching, rendering, convention, lettering, and industrial drawing. (b) Modification of the above course of particular interest to dental, medical, and scientific students. (6 cred.; no prereq.) (Sections limited to 40 each)
Draw.44f,w,s	Lettering. A practical course in plain lettering. (1 cred.; no prereq.) (Sections limited to 50 each quarter)
Draw.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) (Sections limited to 50 each quarter.)

Senior College Courses

Draw.64w	Graphic Arts. Field, development, and application in art and industry. Design and composition. Discussion of materials, style, and technique. Course 64w is one of three related in general subject matter of special interest to students of journalism and advertising. The other two, listed elsewhere in this bulletin, are Journalism 65f, "Graphic Arts: Processes," and Business Administration 194s, "Advanced Advertising Procedure." (3 cred.; jr., sr.; prereq. 15 cred. in econ.)
Draw.81f,w,s- 82f,w,s- 83f,w,s	Advanced Drawing. Principles of design—traditional and modern. Layouts, composition, and illustration. Black and white and color. Scientific modeling. (3 cred. per qtr.; prereq. 43 or equiv.)
Draw.86f,w,s- 87f,w,s†	Anatomical Drawing (3 cred. per qtr.; prereq. 43 or equiv.)

Other courses in Drawing and Descriptive Geometry 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.

† 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.

§ Students may enter any quarter.

HISTORY OF ART (FORMERLY FINE ARTS)

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

Sequence A is concerned primarily with the historical and critical study of the various stylistic periods, artists, and important works. The selection of courses required and suggested for this sequence offers the student not only a broad acquaintance with the fields of the humanities either as an end in itself or as a foundation for further study, but also affords practical training in art criticism and writing, library, museum, and education work in the Arts. Requirements for students majoring in this sequence are Courses 1-2-3 (Introduction to Art) and 33 credits in courses numbered above 50. Strongly recommended, but not required, are 6 or more credits of studio work, a reading knowledge of at least one foreign language, and basic courses in history and literature.

Sequence B is intended for students desiring a practical acquaintance with the various artistic processes as well as technical skill in drawing and studio design. Requirements for students majoring in this sequence are: Courses 1-2-3 (Introduction to Art); 9 credits in art history courses with numbers above 70; and 27 credits in practical art courses. For a list of these courses see pages 29, 30, and 32 of this bulletin. The basic point of view governing the organization of this sequence is that the professional artist must have a sound cultural background as well as artistic skill and technical training in his chosen field.

Other professional possibilities available in the Senior College curriculum in Sequence B include Commercial Design and Industrial Design to be arranged in conference with an adviser from History of Art.

Modification of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College. Either of these sequences is begun after the student has satisfied the usual requirements for admission to the Senior College described on pages 9-11 of this bulletin. The following courses of study are recommended by the Department of Fine Arts for the freshman and sophomore years.

1. English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (9 credits) or exemption from the requirement.
2. French, German, or Spanish to meet the foreign language requirement.
3. Social Science 1-2-3 (Introduction to Social Science) or anthropology or economics or history or sociology, to meet the social science requirement.
4. Natural Science 1-2-3 (Orientation in the Natural Sciences) or psychology (with laboratory), or zoology, or botany to meet the natural science requirement.
5. Public Health 3 (Personal Health, 2 credits).
6. Fine Arts 1-2-3 (Introduction to Art).
7. *For Sequence B*—at least 12 credits in studio courses in drawing and painting selected from Architecture DP-I, DP-II; Art Education 4-6-8, 24-26-28, 31-32; Drawing 41-42-43, 81-82-83. *For Sequence A*—Courses in English and foreign literature, History 1-2-3 (Civilization of the Modern World), Humanities 1-2-3 (Humanities in the Modern World) and Humanities 11-12-13 (The European Heritage: From Homer to Molière) are recommended in preference to the studio courses.
8. Electives to make up the required total of 90 credits.

In both elementary and advanced courses the extensive facilities of the University and the Twin Cities are planned as an integral part of the curriculum. These include: the current exhibitions shown at the University Gallery, the collection of prints, reproductions, and art reference pamphlets in the Fine Arts Reading Room of the gallery, the original works of art on exhibition in the Minneapolis Institute of Arts, the Walker Art Center, the St. Paul Gallery of Art, and the studio facilities of the University Department of Art Education and the Institute of Technology.

Junior College Courses

- F.A.1f Introduction to Art: Modern Art. Modern architecture, painting, and sculpture in Europe and America, with a critical analysis of the various schools, the theories, and the principal works of contemporary art. Particular emphasis is placed upon the study of important architectural monuments in St. Paul and Minneapolis as well as the original works of art in the Minneapolis Institute of Arts, the Walker Art Center, and the St. Paul Gallery of Art. These, together with the current exhibitions and art reproductions in the University Gallery, are the working laboratories of the course. (3 cred.; no prereq.)
- F.A.2w Introduction to Art: Ancient and Medieval Art. A general history of painting, sculpture, and architecture from prehistoric times through the Egyptian, Greek, and Roman styles to the end of the Romanesque and Gothic periods of Medieval Europe. (3 cred.; no prereq.)
- F.A.3s Introduction to Art: Renaissance and Baroque Art. The history of painting, sculpture, and architecture from the early Renaissance in Italy to the French Revolution. (3 cred.; no prereq.)
- F.A.10f,w,§† Photography. 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.)

Senior College Courses

Courses 57-58-59, and 71, 72, 73 are open to sophomores who have completed 9 credits in Fine Arts, with an average grade of C. 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 25.

F.A.57f-58w-

59s

Art in the Americas. 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 architecture and painting will be covered, particularly in Mexico and the United States. (3 cred. per qtr.; jr., sr.; prereq. 1-2-3 or Arch. 51-52-53 or consent of instructor)

F.A.61-62-63

Tutorial Work. (The same as Arch. 61-62-63) (2 cred. per qtr.; for students majoring in architecture or in fine arts, Sequence A only; prereq. consent of instructor) (*Not offered*)

F.A.71f

Modern Art: Classicism and Romanticism. The development of sculpture and painting from the period of the French Revolution to about 1850 in France, Germany, Spain, and England, as well as parallel developments in America. (3 cred.; jr., sr.; prereq. 1-2-3 or Arch. 51-52-53 or consent of instructor)

F.A.72w

Modern Art: Realism and Impressionism. 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. 1-2-3 or Arch. 51-52-53 or consent of instructor)

F.A.73s

Modern Art: Contemporary Art in Europe and America. The development of painting in Europe from Post-Impressionism (Cezanne, Van Gogh, Gauguin) through contemporary Surrealism, together with the related movements in the United States (3 cred.; jr., sr.; prereq. 1-2-3 or Arch. 51-52-53 or consent of instructor)

F.A.141

Art in Egypt and the Near East. 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. Particular emphasis will be placed on the history and exploitation of the various archeological sites as well as on the methods of archeological research (3 cred.; jr., sr., grad.; prereq. 9 cred. in fine arts, or 9 cred. in hist. or lit. with consent of instructor) (*Not offered*)

F.A.142

Greek Art. A 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 periods (3 cred.; jr., sr., grad.; prereq. 9 cred. in fine arts, or 9 cred. in hist. or lit. with consent of instructor) (*Not offered*)

F.A.143

Etruscan and Roman Art. Architecture, painting, and sculpture from the early Etruscan period through Rome of the Republic and Imperial epochs and the period of Constantine (3 cred.; jr., sr., grad.; prereq. 9 cred. in fine arts, or 9 cred. in hist. or lit. with consent of instructor) (*Not offered*)

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

- F.A.151 Foundations of Christian Art.* The study of architecture, sculpture, mosaics, manuscript illumination, and mural painting from the early Christian period through the age of Charlemagne (3 cred.; jr., sr., grad.; prereq. 9 cred. in fine arts or 9 cred. in history or literature with consent of instructor) (*Not offered*)
- F.A.152 Monastic Art of the Middle Ages.* The study of architecture, sculpture, and related religious arts as developed in the great monastic centers of Europe, particularly in the eleventh and twelfth centuries (3 cred.; jr., sr., grad.; prereq. same as for 151) (*Not offered*)
- F.A.153 The Art of the Great Cathedrals.* A study of the important cathedrals of Europe both from the standpoint of the development of the Gothic style in architecture, sculpture, and stained glass, and as expressions of medieval culture (3 cred.; jr., sr., grad.; prereq. same as for 151) (*Not offered*)
- F.A.154 Italian Painting and Sculpture of the Early Renaissance.* The development of painting and sculpture in Italy from Masaccio and Ghiberti to Donatello and the great painters of the fifteenth century in Florence, Rome, and Venice (3 cred.; jr., sr., grad.; prereq. 9 cred. in fine arts, or 9 cred. in hist. or lit. with consent of instructor) (*Not offered*)
- F.A.155 Great Masters of the High Renaissance.* A study of the sources and the important works of Leonardo da Vinci, Raphael, Michelangelo, Titian, and Correggio, with a survey of their influence on the Renaissance art of Spain, France, and Flanders (3 cred.; prereq. 9 cred. in fine arts, or 9 cred. in hist. or lit. with consent of instructor) (*Not offered*)
- F.A.156 Renaissance Art in Northern Europe.* The development of painting and sculpture in Flanders, Northern 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. 9 cred. in fine arts, or 9 cred. in hist. or lit. with consent of instructor) (*Not offered*)
- F.A.157f Baroque Art. The Classic Tradition.* The development of painting from the academic schools of the late Renaissance in Italy, through the art of Peter Paul Rubens in Flanders, and the classic period of French painting (Poussin, Lorraine) (3 cred.; jr., sr., grad.; prereq. 9 cred. in fine arts, or 9 cred. in history or literature with consent of instructor)
- F.A.158w Baroque Art in Spain.* 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. 9 cred. in fine arts, or 9 cred. in history or literature with consent of instructor)
- F.A.159s Baroque Art in Holland.* 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. 9 cred. in fine arts, or 9 cred. in history or literature with consent of instructor)

For Graduate Students Only

- F.A.201f-202w-203s Seminar. Special Problems in American Art.* (3 cred. per qtr.; prereq. 18 cred. in Senior College courses in fine arts or consent of instructor)

ART EDUCATION

See Art, page 30.

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* 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.)
- 11s* Descriptive Astronomy (See 11f)
- 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.)

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 25.

- 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)
- 52w§ Astrophysics (4 cred.; prereq. 51 or 11 and Math. 6)
- 53s§ Stellar Astronomy (3 cred.; prereq. 51 or 11 and Math. 6)
- 101f§ Celestial Mechanics (3 cred.; jr., sr., grad.; prereq. Math. 51)
- 140f§ Least Squares (3 cred.; prereq. 51 or 11 and at least Math. 51)

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.

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—Sequence A. For work in medical or public health bacteriology, Courses 101, 102, 104, 114, 116, 120, 124, and Zoology 51.

(Prerequisites: Zoology 1-2-3 and 10 credits in chemistry.)

Sequence B. For work in industrial bacteriology, Courses 53, 103, 104, 114, 121-122, 123.

(Prerequisites: 4 credits in botany or zoology; 15 credits in chemistry; and 8 credits in biochemistry or organic chemistry.)

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

- 1f,w,s Elements of Bacteriology (Exclusively for students in the three-year curriculum in Nursing) (4 cred.; no prereq.)

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 25.

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

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

§ No student should register for this course without first consulting Professor Luyten.

- 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.)
- 101w†‡¶ 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)
- 102s‡ 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)
- 103f Soil Microbiology. Methods for enumeration and study of microflora and microfauna. Biochemical activities of soil population (5 cred.; jr., sr., grad.; prereq. 53 or 101 and 15 cred. in chem.)
- 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.) (Class limited to 15 students)
- 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)
- 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.; jr., sr., grad.; prereq. 102)
- 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)
- 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.)
- 123s Applied Bacteriology. Statistics as applied to bacteriology; bacteriology of water and sewage (3 cred.; jr., sr., grad.; prereq. 121-122)
- 124f Filterable Viruses. Character, nature, and transmission of viruses; important virus diseases (4 cred.; jr., sr., grad.; prereq. 102)

BIOSTATISTICS

See Public Health, page 109.

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—

- A. In Botany, 27 credits in Senior College courses in botany, including Courses 50, 51, 52, 53, and 54.
- B. In special fields, such as morphology, taxonomy, physiology, or ecology, a major will consist of the respective courses with numbers over 100 and additional approved courses to make a total of 27 credits in Senior College courses.

(Prerequisites: *For sequences A and B:* Courses 1-2-3 or 4-5, a beginning course in general chemistry and either Principles of Genetics (Agron. and Plant Genetics 31) or Plant Pathology (Plant Path. and Agric. Bot. 1). At least one year of French or German is recommended as part of the Junior College work.)

† 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.

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 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, p. 62.

Junior College Courses

- 1f†-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.)
- 4††-5*†† General Botany (10 cred.; no prereq.) (*Not offered*)
- 10§ Minnesota Plant Life. A non-technical survey of all of 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.)

Senior College Courses

Courses 50, 51, 52, 53, 54, 56 are open to sophomores who have an average grade of at least C in Course 1-2-3 or 4-5. Students who wish to enter these courses from Natural Science 7-8-9 must consult the department. 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 25.

- 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)
- 51w† 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 (3 cred.; jr., sr.; prereq. 1-2-3 or 4-5 and one quarter of general chemistry)
- 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)
- 53f† Introductory Plant Anatomy. The structure and development of plants with especial reference to the higher forms (3 cred.; jr., sr.; prereq. 1-2-3 or 4-5)
- 54s† Survey of the Plant Kingdom. A brief consideration of evolutionary relationships throughout the plant kingdom, especially as illustrated by life histories (3 cred.; jr., sr.; prereq. 1-2-3 or 4-5)
- 56f Introduction to the Study of Fungi (3 cred.; jr., sr.; prereq. 9 cred. in botany or permission of instructor)
- 108 Pteridophytes (5 cred.; sr., grad.; prereq. 54) (*Not offered*)

* 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 this course.

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

- 110 *Gymnosperms* (5 cred.; sr., grad.; prereq. 54) (*Not offered*)
- 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)
- 114† *Phyletic Taxonomy of Angiosperms* (3 cred.; jr., sr., grad.; prereq. 52 or consent of instructor) (*Not offered*)
- 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)
- 117 *Floristic Plant Geography* (5 cred.; jr., sr., grad.; prereq. 52 or consent of instructor) (*Not offered*)
- 118† *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.) (*Not offered*)
- 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)
- 120†† *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) (*Not offered*)
- 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)
- 123w†† 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)
- 127s† 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)
- 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.; jr., sr.; prereq. 1-2-3 or 4-5)
- 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 For. 2, 3, 4)
- 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 For. 2, 3, 4)
- 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 For. 2, 3, 4)
- 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)
- 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)
- 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; hormones; tropisms (3 cred.; jr., sr., grad.; prereq. 51 or equiv. and an elementary course in organic chem. or biochem. or consent of instructor)
- 141 *Physicochemical Principles and Measurements in Plant Physiology* (3 cred.; sr., grad.; prereq. 20 cred. in chem. or biochem.; 51 or 140; Phys. Chem. 107 or consent of instructor) (*Not offered*)
For laboratory see 146.

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

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

- 142w Photosynthesis and Other Effects of Radiation. A detailed discussion of the present state of knowledge of the assimilation of carbon dioxide and other effects of light on green plants (3 cred.; sr., grad.; prereq. same as for 141)
For laboratory see 147.
- 143s Plant Metabolism. Mineral nutrition: carbohydrate, nitrogen and fat metabolism in plants; biological oxidation; plant enzymes, their nature and functions; the growth of plants (3 cred.; sr., grad.; prereq. same as for 141)
For laboratory see 148.
- 146†† *Advanced Physiology Laboratory* (2 cred.; sr., grad.; to be taken with or after 141)
(*Not offered*)
- 147w††, 148s†† *Advanced Physiology Laboratory* (2 cred. per qtr.; sr., grad.; to be taken with or after 142, 143 respectively)
- 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)
- 197f†-198w†-199s† Problems. Advanced work in a specialized field (1 to 5 cred. per qtr.; jr., sr., grad.; prereq. 20 cred. in pl. sci. and permission of instructor)

For Graduate Students Only

- 201f-202w-203s Research Problems in the Morphology of Vascular Plants
205f-206w-207s Research Problems in Taxonomy and Floristic Plant Geography
221f-222w-223s Research Problems in Ecology
225f-226w-227s Research Problems in Plant Physiology
229f-230w-231s Research Problems in Cytology
233f-234w-235s Seminar (Students may register for one credit per quarter in any of the research subjects)

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; a year of college physics; mathematics through differential and integral calculus which need not be completed until the end of the student's junior year.)

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

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

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.

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.)
- 4f†-5w†† General Inorganic Chemistry. Study of the general laws of chemistry and of the non-metals and metals and their compounds. More intensive than Course 1-2 (4 cred. per qtr.; prereq. entrance cred. in chem.)
- 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.)
- 9f†-10w†† General Inorganic Chemistry. Study of the general laws of chemistry and of the non-metals, metals, and their compounds (5 cred per qtr.; prereq. entrance cred. in chem.)
- 11f,w,s,†† 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)
- 12f,w,s,†† 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)
- 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., and A chemistry majors)
- 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)
- 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. 63)

† 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. Non-veterans 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. Non-veterans 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.

- 106w-107s Chemistry of the Less Familiar Elements (3 cred.; jr., sr., grad.; prereq. Anal. Chem. 1-2 and Org. Chem. 63)
- 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. 63)
- 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. 63)

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 given to proper laboratory practice. Course 1, Gravimetric Analysis. Course 2, Volumetric Analysis (10 cred.; soph., jr., sr.; prereq. Inorg. Chem. 13)
- 7f,s‡ 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)
- 9w‡ Quantitative Analysis. Short introductory course covering general principles of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention given to proper laboratory practice (3 cred.; prereq. Inorg. Chem. 11, 12, or 16; for dentists, engineers, and miners)
- 96f†-97w†-98s‡ Senior Topics (5 cred. per qtr.; sr.)
- 101w†-102s‡ Quantitative Analysis. General principles, methods, and procedure of quantitative analysis, both gravimetric and volumetric. Typical problems assigned and attention given to proper laboratory practice (5 cred. per qtr.; jr., sr., grad.; prereq. Inorg. Chem. 13)
- 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)
- 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)
- 105w‡ Polarizing Microscope. Its use and application to chemistry. Identification of substances (3 cred.; jr., sr., grad.; prereq. Phys. Chem. 101)
- 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)
- 109f,w,s†‡ Rock Analysis. Laboratory course covering the technique of rock analysis (3 cred.; jr., sr., grad.; prereq. Anal. Chem. 1-2)
- 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)
- 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)
- 127s‡ Optical Methods in Analytical Chemistry (2 to 3 cred.; prereq. Phys. Chem. 103)
- 131f‡ Application of Indicators in Neutralization Reactions and pH Determinations. (3 cred.; jr., sr., grad.; prereq. Anal. Chem. 1-2 and Phys. Chem. 103)
- 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)
- 133s‡ Voltammetry and Amperometric Titrations. A discussion of the use of the dropping mercury electrode (polarograph) and the platinum microelectrode in pure and applied chemistry (2 to 4 cred.; jr., sr., grad.; prereq. Phys. Chem. 103)

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

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

- 134f-135w-136s Seminar: Modern Problems in Analytical Chemistry (1 cred. per qtr.; jr., sr., grad.; prereq. Anal. Chem. 1-2, and Phys. Chem. 103)
- 137f‡ Advanced Volumetric Analysis (3 cred.; jr., sr., grad.; prereq. Anal. Chem. 131)
- 140w‡ Water Analysis. Analysis of potable water with interpretation of results (2 cred.; jr., sr., grad.; prereq. Anal. Chem. 1-2)

ORGANIC CHEMISTRY

- 61f,w‡-62w,s‡† 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 (8 cred.; for chem., chem. eng., premedical, pre dental, and pharmacy students; prereq. 12-15 cred. in chem.)
- 63f,s Elementary Organic Chemistry, Lecture Course. Continuation of 61-62 (3 cred.; open to all except premedical, pre dental, and pharmacy students; prereq. 62. Course 63 is prerequisite to all other advanced courses in organic chemistry)
- 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)
- 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.)
- 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.)
- 102s 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)
- 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.)
- 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)
- 116 *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 or equiv.) (*Offered in alternate years. Not offered in 1947-48*)
- 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)
- 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) (Registration limited. Permission of instructor must be obtained)
- 140f 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)
- 141 *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) (*Offered in alternate years. Not offered in 1947-48*)

† 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. Non-veterans 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.

- 142w-143s The Chemistry of Natural Products. Discussion of the organic chemistry of important classes of natural products (3 cred. per qtr.; prereq. 63 and 64)

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)
- 205-206 *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) (*Offered in alternate years. Not offered in 1947-48*)
- 212 *Physico-Organic Chemistry*. Contributions made to organic chemistry by kinetic and equilibrium studies of organic reactions, including mechanisms of catalytic and ionic 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. (*Offered in alternate years. Not offered in 1947-48*))
- 301f-302w-303s Research in Organic Chemistry (Cred. ar.; prereq. 110 and permission of division)

PHYSICAL CHEMISTRY

- 101f-102w-103s Physical Chemistry. A general survey of the subject (9 cred.; jr., sr., grad.; prereq. two years college chemistry, one year college physics, and mathematics through differential and integral calculus) (101 is prereq. to 102 and 102 is prereq. to 103)
- 104f‡-105w‡-106s‡ Physical Chemistry Laboratory (To accompany or follow Course 101-102-103) (1 or 2 cred. per qtr.)
- 107f,su‡ Elementary Physical Chemistry (6 cred.; for premedical students only; prereq. two years college chemistry, one year college physics)
- 113f 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)
- 114w 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)
- 116f Advanced Physical Chemistry. Thermodynamics. Designed to cover the fundamentals with application to chemical problems (3 cred.; jr., sr., grad.; prereq. 103)
- 117w Advanced Physical Chemistry. Phase Rule. Thermodynamics of electrolytic solutions. Elements of reaction kinetics (3 cred.; jr., sr., grad.; prereq. 116)
- 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)
- 122w 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)
- 123,124 *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) (*Not offered in 1947-48*)
- 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)
- 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)
- 130 *Colloids in Industry*. The important applications of colloid chemistry to many of the fields of chemical industry (3 cred.; jr., sr., grad.; prereq. 128) (*Not offered*)
- 131s Colloidal Processes. A survey of the important colloidal processes; coagulation sol-gel transformation, thixotropy and dilatancy (3 cred.; jr., sr., grad.; prereq. 128)
- 132f‡-133w‡-134s‡ Colloid Chemistry Laboratory (Cred. ar.; sr., grad.; prereq. 128)
- 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)

‡ A fee of \$2 per quarter is charged for this course. Non-veterans 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.

- 175 *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) (*Not offered*)

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.

CHILD WELFARE

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

Major advisers in the College of Education—Professor Harris 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 the 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.)
- 40f,w,s* 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)

Note—See also Family Life 25f,w,s (Child Development and Adjustment) under General Studies, page 60.

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 25.

- 80f,w,s Child Psychology. A survey of child psychology and its applications (3 cred.; jr., sr.; prereq. Psy. 1-2)
- 90f Home, School, and Family Relations. Adjustment within and outside the family; relation of adults and children; family problems, finance, discipline, recreation, marital adjustment, etc. (2 cred.; jr., sr.; prereq. 80)
- 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.)
- 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.)
- 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.)
- 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.)
- 140f,w 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.)
- 141w,s 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.)

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

- 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 (3 cred.; sr., grad.; prereq. 12 cred. in psy.)
- 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.)
- 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.)
- 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.)
- 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)
- 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.)
- 190f Principles of Mental Measurement of Young Children. Survey of mental 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.)

For Graduate Students Only

- 220f-221w-222s Seminar in Current Research
- 225s Seminar in Developmental Theory
- 226w Seminar in Projective Methods with Children and Adolescents
- 230f-231w-232s Seminar in Recent Literature
- 270f-271w-272s Readings and Research in Child Development
- 274w-275s Technique and Field Work in Parent Education
- 290w-291s Mental Examination of Preschool Children

Note—See also Courses Ed.T. 55-58, 70, 75, 76A-76B-76C, 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

The elementary course 1-2-3 and twenty-seven credits in courses numbered above 50, which may include nine credits in Latin courses numbered above 50, or nine credits in ancient history.

LATIN

Any three of the courses with numbers between 50 and 100; and one of the following combinations: (a) Any six courses numbered above 100; (b) any three courses numbered above 100, and Greek 51, 52, 53 or nine credits in ancient history.

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: Course 73-74-75 and any two of the courses with numbers between 50 and 100, 111-112-113 and two courses numbered above 100.

Minor recommendation: Course 73-74-75 and any two of the courses with numbers between 50 and 100.

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 73-74-75.

GREEK

Junior College Courses

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

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 25. Students who continue Greek in the Senior College will enroll in Greek 171, 172, 173, "Independent Reading Courses." The subject matter of these courses will be varied to meet the needs of the individual student.

51f	Lucian (3 cred.; jr., sr.; prereq. 1-2-3)
52w	Homer (3 cred.; jr., sr.; prereq. 1-2-3)
53s	Plato, Apology and Selections (3 cred.; jr., sr.; prereq. 1-2-3)
73s	New Testament (3 cred.; jr., sr.; prereq. any two of 51, 52, 53)
121-122-123†	<i>Advanced Composition</i> (9 cred.; jr., sr., grad.; prereq. 24 cred. in Greek) (<i>Not offered</i>)
171f,*172w,*	
173s*	Independent Reading Courses (3 cred. per qtr.; open to students of exceptional ability with the consent of the instructor)

For Graduate Students Only

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

Courses for Which No Knowledge of Greek Is Required

(See page 48.)

LATIN

Junior College Courses

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

Senior College Courses

Courses 51, 52, 53, 63, 73-74-75, 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 25.

51f	Selected Readings from Prose and Poetry (3 cred.; jr., sr.; prereq. 12, or 3 or 4 yrs. of high school Latin)
52w	Horace (3 cred.; jr., sr.; prereq. 51 or 63)
53	<i>Suetonius, Selected Lives</i> (3 cred.; jr., sr.; prereq. 51 or 52 or 63) (<i>Not offered</i>)

* 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.

- 63s Plautus and Terence (3 cred.; prereq. § 12, or 4 yrs. of high school Latin)
 73f-74w-75s† Prose Composition (3 cred.; prereq. 12, or 4 yrs. of high school Latin)
 81-82-83 *Survey of Roman Literature* (9 cred.; jr., sr.; prereq. any one of Courses 51, 52, 53, 63) (Not offered)
- 111f-112w-
 113s† Advanced Prose Composition (3 cred.; jr., sr., grad.; prereq. 73-74-75)
 121f Advanced Vergil (3 cred.; jr., sr., grad.; prereq. *)
 131 *Juvenal* (3 cred.; jr., sr., grad.; prereq. *) (Not offered)
 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)
 142w Tacitus (3 cred.; jr., sr., grad.; prereq. *)
 151 *Advanced Cicero* (3 cred.; jr., sr., grad.; prereq. *) (Not offered)
 152 *Lucretius* (3 cred.; jr., sr., grad.; prereq. *) (Not offered)
 171f,172w,173s Independent Reading Course (3 cred. per qtr.; prereq. *; open to students of exceptional ability with the consent of department)

For Graduate Students Only

- 201-202-203 *Graduate Seminar: Cicero* (9 cred.) (Not offered)
 211-212-213 *Graduate Seminar: The Latin Epic* (3 cred. per qtr.) (Not offered)
 221-222-223 *Graduate Seminar: Lyric Poetry* (9 cred.) (Not offered)
 231-232-233 *Graduate Seminar: Latin Historiography* (9 cred.) (Not offered)
 241f-242w-243s *Graduate Seminar: Introduction to Classical Philology* (9 cred.)

Courses for Which No Knowledge of Greek or Latin Is Required

- 14f-15w-16s Basic Readings in Ancient Civilization (6 cred.; prereq. Hist. 14-15-16 or concurrent registration in the same)
 24s Greek and Latin Elements in English. This course aims to familiarize the student with the Greek and Latin roots, prefixes, and suffixes which occur frequently in English words, especially in scientific words. (The same as English 24.) (2 cred.; soph., jr., sr.; no prereq.)
 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. (The same as English 31, 32.) (2 cred. per qtr.; soph., jr., sr.; no prereq.)
 42w Greek Mythology. The origin and development of myths (2 cred.; soph., jr., sr.; no prereq.)
 43s Ancient Mythology in Relation to Literature and Art (The same as English 43) (2 cred.; soph., jr., sr.; no prereq.)
 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)
 108s Cultural Aspects of Language (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language)
 192w,193s Classical Literary Tradition (2 cred. per qtr.; jr., sr., grad.; prereq. 9 cred. in English or a foreign language)

COMMUNICATION

See General Studies, page 60.

COMPARATIVE PHILOLOGY AND LINGUISTICS

See Linguistics and Comparative Philology, page 83.

DRAWING AND DESCRIPTIVE GEOMETRY

See Art, page 32.

* Any two of the courses with numbers between 50 and 100.

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

§ A student who enters in the spring quarter with three years of high school Latin may, by special permission, take Course 63s.

‡ Students may enter either quarter.

ECONOMICS

Courses Offered by 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 130 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—Professors Garver and Blakey; 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, 108, 149, 176, 191-192; (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 | Industrial History. A historical survey of the development of industry, especially in Europe and America during the last two hundred years; the influence of technological and commercial changes; the organization of production and marketing; the labor supply; government policies affecting industrial conditions (5 cred.; fr., soph.; no prereq.) |
| 2w | Industrial Production and Organization. This course is an introduction to business, the emphasis being placed upon the production of goods by industry. The material is presented from the point of view of business management, consideration being given to certain aspects of management's handling of equipment, labor, materials and finance in the production of goods for the market (5 cred.; fr. only; no prereq.) |
| 3f,w,s | 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.) |
| 5f,w,s* | Elements of Statistics. Elementary concepts in statistical method; averages, ratios, errors, sampling, index numbers, graphic representation, collection of material (5 cred.; soph.; no prereq.) |
| 6f,w-7f,w,s† | 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.) |

* 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.

- 22f,w,s-23w,s§ 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 surplus, dividends, reserves, funds, bonds, departmental accounting, branch accounting, manufacturing statement analysis and interpretation (8 cred.; soph., jr., sr.; no prereq.)
- 25f Principles of Accounting (3 cred.; soph., jr., sr.; prereq. Econ. 20*)
- 26s Principles of Accounting (3 cred.; soph., jr., sr.; prereq. Econ. 25)
- 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.)
- 32f,w,s† Beginning Typewriting (1 cred.; fr., soph., jr., sr.; no prereq.)
- 33f,w,s-
34f,w,s†† Intermediate and Advanced Typewriting (2 cred.; soph., jr., sr.; prereq. for 33, 30 words per minute; for 34, 45 words per minute)
- 37f-38w-
39s††§§ Beginning and Intermediate Shorthand (9 cred.; soph., jr., sr.; prereq. Econ. 33 or consent of instructor)
- 40ff-41w†† Secretarial Procedure (6 cred.; soph., jr., sr.; prereq. Econ. 34 and 39 or consent of instructor)
- 42s† Advanced Secretarial Procedure (3 cred.; jr., sr.; prereq. Econ. 41)

Senior College Courses

- 50f,w,s 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)
- 82**¶ *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*)
- 83***¶ *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. 82) (*Not offered*)
- 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 83)
- 97f,98w,99s Honors Course in Economics (Cred. ar.; jr., sr.; prereq. consent of major advisers)
- 103f-104w† Advanced Economics. The first part is concerned with the determination of prices under competition, monopoly, and imperfect competition. The second part is concerned with the distribution of wealth and the distribution of the national income (6 cred.; jr., sr., grad.; not open to School of Business Administration students; prereq. 20 cred. in soc. sci. including Econ. 6-7 or 83)
- 105 *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. B.A. 101-102 or Econ. 103-104 or consent of instructor) (*Not offered*)

* Econ. 20 (Elem. of Accounting) was formerly offered but the material is now included in Econ. 22-23.

† 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.

¶ 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.

- 106s 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 neoclassical economics is also studied (3 cred.; jr., sr., grad.; prereq. B.A. 101-102 or Econ. 103-104 or consent of instructor)
- 108 *Applications of Economic Theory.* Detailed applications of formal economic theory to current problems in social policy, such as monopoly prices, conservation, and justice in taxation. Each student will prepare a report on a problem of his own selection (3 cred.; jr., sr., grad.; prereq. B.A. 101-102 or Econ. 103-104) (*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 83 and 15 additional credits in economics and/or business administration. Econ. 155 is a desirable preceding course)
- 111f City Planning. Same as Architecture 104, Political Science 123, and Sociology 104. General survey of the economic, governmental, social, and technical phases of city planning and group housing. (3 cred.; prereq. senior or graduate standing)
- 121f-122w†
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)
- 124w 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)
- 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 83)
- 127 *Comparative Banking: South American Systems* (3 cred.; jr., sr., grad.; prereq. Econ. 142) (*Not offered*)
- 129 *Statistical Economics.* The emphasis in the course is on research method the utilization of statistical data, statistical method, and theoretical analysis to attack an economic problem. The approach to method is *via* substantive empirical work in particular fields. The fields considered shift from quarter to quarter (3 cred.; sr. with consent of instructor, grad.; prereq. Econ. 103-104 and B.A. 112) (*Not offered*)
- 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 83)
- 142f,w,s 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)
- 149f,w,s 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)
- 155f,w,s 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)
- 161f,w,s 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 83)
- 162w,s 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)

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

- 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)
- 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 83)
- 175f,w,s 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 83)
- 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 83)
- 178s 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. Not open to majors in economics or business administration (3 cred.; jr., sr., grad.; prereq. Econ. 6-7 or 83)
- 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.)
- 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 83)
- 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 83)
- 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. 191-192 or B.A. 58)
- 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.)

Courses Open to Graduate Students Only

- 203f-204w Seminar in Economic Theory (6 cred.; grad.)
- 206s Seminar in Market Prices (3 cred.; grad.)
- 207s Theory of Demand (3 cred.; grad.)
- 208 *Production and Distribution* (3 cred.; grad.) (*Not offered*)
- 233f-234w Seminar in Public Finance (6 cred.; grad.)
- 243w-244s Seminar in Money and Banking (6 cred.; grad.)
- 251s Seminar in Industrial Relations (3 cred.; grad.)
- 257w Seminar in Accounting Theory (3 cred.; grad.)

† 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 Economics 191-192 and B.A. 58.

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,s	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 (3 cred.; jr., sr.; prereq. 6 cred. in psy.)
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.)
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.)
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.)
142f,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.)

ENGLISH

Major advisers in the College of Science, Literature, and the Arts—Professor H. N. Smith; Associate Professors Bentley and Jackson; Assistant Professor Clark.

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 57.
- 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, Fielding, and Sheridan; 23s: The Romantic Movement and the Victorians. Wordsworth, Byron, Shelley, Keats, Lamb, Carlyle, Browning, and Arnold (15 cred.; prereq.*)
- 24s Greek and Latin Elements in the English Language. The course aims to familiarize the students with the Greek and Latin roots, prefixes, and suffixes which occur frequently in English words, especially in scientific words. (The same as Classics 24) (2 cred.; soph., jr., sr.; no prereq.)
- 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. (The same as Classics 31, 32) (2 cred. per qtr.; soph., jr., sr.; no prereq.)
- 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.*)
- 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. (The same as Classics 43) (2 cred.; soph., jr., sr.; no prereq.)
- 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 60).

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 25.

- 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.§)

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

- 54s Morris, Pater, and Shaw. Emphasis on the aestheticism of Pater and the social criticism of Morris and Shaw (3 cred.; jr., sr.; prereq.)*
- 55f,w,s-56f,w,s Shakespeare. 55: The reading of selected comedies—*The Comedy of Errors*, *The Two Gentlemen of Verona*, *A Midsummer Night's Dream*, *The Taming of the Shrew*, *The Merchant of Venice*, *Much Ado about Nothing*, *Twelfth Night*, *The Tempest*. Certain of these plays at the option of the instructor will be assigned for outside reading. 56: The reading of selected histories and tragedies—*Richard III*, *Richard II*, *Henry IV*, 1 and 2, *Henry V*, *Julius Caesar*, *Hamlet*, *Macbeth*. Certain of these plays at the option of the instructor will be assigned for outside reading (6 cred.; jr., sr.; prereq.)*
- 62f,w,s Milton. The minor poems, *Areopagitica*, *Paradise Lost*, and *Samson Agonistes* (3 cred.; jr., sr.; prereq. 21-22 or 55-56)
- 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.)*
- 73f-74w¶ American Literature. Notable American authors from Jonathan Edwards to John Steinbeck (6 cred.; jr., sr.; prereq.)*
- 75f,w,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.)*
- 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)
- 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)
- 102w Old English Poetry. Introduction to Old English versification, and critical reading of poems (3 cred.; jr., sr., grad.; prereq. 100)
- 103s Beowulf. An introduction to the Old English poem, with reading of considerable portions of the text (3 cred.; jr., sr., grad.; prereq. 100)
- 109f-110w Romantic Poets of the Early Nineteenth Century. 109f: Wordsworth, Coleridge, Scott, etc.; 110w, Byron, Shelley, Keats, etc. (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C)
- 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)
- 114 *The Midwest in Literature* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 115f-116w The Development of English Prose Style. 115f: 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. 116w: Studies in the styles of selected writers since 1700 (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C)
- 117 *American Essay* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 118f-119w Nineteenth-Century Prose. 118f: The literature of social criticism: Carlyle, Ruskin, Arnold, and others; 119w, 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)
- 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)
- 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)
- 126f-127w Drama, 1660-1850. The History of English drama from the opening of the theatres 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)

* 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.

- 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)
- 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)
- 135s 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)
- 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)
- 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)
- 147f-148w-149s 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)
- 150s Victorian Poetry. The principal poets of the era, apart from Browning and Tennyson: Matthew Arnold, the Rossettis, Fitzgerald, Morris, Swinburne, Hardy, Meredith, and others (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C)
- 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)
- 152w Medieval and Early Elizabethan Drama. Selected mystery and morality plays and farces; *Ralph Roister Doister*, *Gammer Gurtons Nedle*; Kyd, Marlowe, Lyly, Greene, Peele (3 cred.; jr., sr., grad.; prereq. 55-56)
- 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)
- 156 *American Drama* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C (*Not offered*))
- 157-158 *Elizabethan Non-Dramatic Literature* (6 cred.; jr., sr., grad.; prereq. 55-56) (*Not offered*)
- 159-160 *Colonial Literature in America* (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C (*Not offered*))
- 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 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)
- 166w 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)
- 167w-168s 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)
- 169 *Browning and Tennyson* (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 170 *Elizabethan Drama, Exclusive of Shakespeare* (3 cred.; jr., sr., grad.; prereq. 55-56) (*Not offered*)
- 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)

¶ Students may enter either quarter.

- 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)
- 175-176f *The History of English Verse* (6 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C) (*Not offered*)
- 179-180 *Social and Intellectual Backgrounds of American Literature* (6 cred.; jr., sr., grad.; prereq. 6 cred. of American history, philosophy, political science, or literature) (*Not offered*)
- 181w 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)
- 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)
- 183f The Poetry of T. S. Eliot (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C)
- 184f-185w-186s The Interpretation of Drama. Critical analysis of plays: modern, renaissance, and ancient. (The same as Speech 184-185-186) (9 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C; 55-56 recommended)
- 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)
- 191f Imagery and Symbolism in English and American Literature. A study of manifold literary influences, from the seventeenth century onwards, upon T. S. Eliot and other twentieth-century writers (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C)
- 194f 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)
- 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)

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

For Graduate Students Only

- 231f-232w-233s Shakespeare's Tragic and Comic Art. Studies in selected plays with special attention to the traditions of Elizabethan dramatic technique (9 cred.; grad.; prereq. 3 cred. above 100 in Elizabethan literature or permission of instructor)
- 259f-260w-261s Nineteenth-Century Novel I. The Gothic and Revolutionary Novel, Scott and Jane Austen, Dickens and the social novel (9 cred.; grad.; prereq. permission of instructor; only 259f and 260w open to students who have taken 262-263-264)
- 274f-275w-276s English Literature, 1700-1744. The literature of the first half of the eighteenth century in the light of critical theories and currents of thought. Research topics and bibliographical problems will be assigned. Some familiarity with the period and a reading knowledge of French are desirable (9 cred.; grad.)
- 277f-278w-279s American Realism. The growth of realism as exemplified in the work of Mark Twain, Howells, and Henry James (9 cred.; grad.; prereq. permission of instructor)

COMPOSITION

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

¶ Students may enter either quarter.

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.)

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 p. 60) 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 9-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,w-Bw,s-Cf,s 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 19.)

4f,w,s-5f,w,s-6f,w,s 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 19.)

Attention is called to Communication 1-2-3 (page 60).

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)

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,w,s-28f,w,s 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 confused 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)
- 29f,w,s 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)

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 25.

- 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)
- 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)
- 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)
- 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 (9 cred.; sr., grad.; prereq. permission of instructor and for undergraduates 6 cred. above 50 in composition)
- 104s The Writing of Poetry. (See also Eng. 120-121) (3 cred.; sr., grad.; prereq. Eng. 120-121 or 6 cred. above 50 in Composition, and permission of instructor)

For Graduate Students Only

- 200-201-202 *Graduate Seminar in Writing* (9 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) (*Not offered*)

FAMILY LIFE

See General Studies, page 60.

FINE ARTS

See Art, page 33.

FRENCH

See Romance Languages, page 109.

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,w,s-
2f,w,s-
3f,w,s††

Communication. The principles by which language is used to communicate; practice in various types of written and spoken communication as well as in critical reading and listening; the forms and agencies of public communication, especially the press and radio. The course includes regular conferences with the instructor and exercises with a voice reflector for speech improvement. It is regarded as an equivalent of Composition 4-5-6 in satisfying any requirements of the University. (Formerly Communication 4-5-6) (9 cred.; prereq. placement test, see page 58. Corresponds to G.E.D. Test No. 1. See page 19.)

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.)
- F.L.14f,w,s† Nutrition and Food Management. Scientific principles of nutrition; food purchasing; food preparation and service. The class is limited to 20 students, and will afford practical laboratory experience (5 cred.; no prereq.)
- 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.)
- F.L.20s 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.)
- 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. Not a substitute for C.W. 40 or C.W. 80 in professional curricula) (3 cred.; no prereq.)

HUMANITIES

Junior College Courses

- Hum.1f,w,s†† Humanities in the Modern World I. The intellectual, political, and economic revolutions which gave humanity its modern world. Period: from about 1770 to about 1830. Authors: Voltaire, Rousseau, Burke, Paine, Goethe, and the poets. One historical novel (5 cred.; no prereq.)
- Hum.2w,s Humanities in the Modern World II. The Industrial Revolution and Liberalism. How these bulked large in the nineteenth century. Period: from about 1830 to about 1870. Authors: Carlyle, Mill, Marx, Ibsen, Dostoevsky, Zola, and the poets (5 cred.; prereq. 1)
- Hum.3s 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, Turgeneff, Nietzsche, Shaw, Lenin, Forster, and the poets (5 cred.; prereq. 2)

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

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

- Hum.4f Humanities in the Modern World I. An introduction to the study of the humanities since World War I. The authors studied include Freud, Lenin, Shaw, Capek, Malraux, Thomas Mann, 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)
- 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. (Formerly Humanities 5-6-7)
- 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.)
- Hum.12w The Roman and the Medieval Heritage. Roman jurisprudence and organization; epicureanism and stoicism. Selections from Lucretius, Epicetetus, 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 painting, ecclesiastical and feudal architecture (5 cred. no prereq.)
- Hum.13s The Renaissance Heritage. Humanism; magnificence and individualism; secularism, scepticism, 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.)
- 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. (The same as American Studies 21. Formerly Humanities in the United States I) (3 cred.; no prereq.)
- Hum.22w American Life II. The growth and interrelation of individualism and democracy, with particular attention to the status of minorities. (The same as American Studies 22. Formerly Humanities in the United States III) (3 cred.; no prereq.)
- Hum.23s American Life III. The place in American civilization of work, the pursuit of happiness, the good life: their implications and interrelations. (The same as American Studies 13. Formerly Humanities in the United States III) (3 cred.; no prereq.)

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.

- 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.)
- 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.)
- 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 (The same as American Studies 71-72-73) (9 cred.; jr., sr.; no prereq.)
- Hum.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.)

For information concerning a major in the Humanities, see page 74.

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

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 Junior College course when taken in its entirety will 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. 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, geology and the biological sciences; 3s: Some phases and applications of the biological sciences, such as the infections and communicable diseases, and public health; readings in anthropology and psychology (15 cred.; fr., soph.; no prereq. Corresponds to G.E.D. Test No. 3. See page 19.)

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.)

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.)

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 25.

Nat.Sci.81-82-

83*

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. (The same as Philosophy 81-82-83) (Formerly Philosophy 80-81-82) (9 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.) (*Not offered*)

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. Written permission from the Junior College Counseling Office, 108 Folwell Hall, is necessary to take this course.)

* Students may enter any quarter.

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

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.; no prereq.; not designed for students who have already received the services of the Student Counseling Bureau or a Veterans Administration Advisement Center)

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 student to integrate his own social philosophy.

Junior College Courses

Soc.Sci.1f,w,s-
2w,s-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 entire course (12 cred.), but not any part of it, will satisfy the social science requirement for admission to the Senior College of Science, Literature, and the Arts and the College of Education (12 cred.; no prereq. Corresponds to G.E.D. Test No. 2. See page 19.)

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 25.

Soc.Sci.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. (The same as Philosophy 71) (Formerly Philosophy 21) (5 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.)

GEOGRAPHY

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

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 Davis.

Requirements for a teacher's certificate—Major recommendation: a minimum of 28 credits from the following courses in Geography: 11, 41, 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,w,s	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. §)
35	<i>Geography of Regions of Present International Concern.</i> A series of illustrated lectures dealing with areas of current interest (1 cred.; no prereq.) (<i>Not offered</i>)
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. §)
43	<i>Political Geography</i> (5 cred.; soph., jr., sr.; no prereq.) (<i>Not offered</i>)
47	<i>Geography of Minnesota</i> (3 cred.; soph., jr., sr.; no prereq.) (<i>Not offered</i>)

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 25.

53s	Historical Geography of North America (3 cred.; jr., sr.; prereq. 11, or 15 cred. in history)
71f	Geography of North America (3 cred.; jr., sr.; prereq. 11)
101	<i>Geography of Europe</i> (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) (<i>Not offered</i>)
102w	Trade Routes and Trade Centers (3 cred.; jr., sr., grad.; prereq. 41)
103	<i>Geography of Africa</i> (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) (<i>Not offered</i>)
104s	Geography of Australasia (2 cred.; jr., sr., grad.; prereq. 11 or permission of instructor)
110f	Geography of South America (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor)
111	<i>Cartography and Graphic Representation</i> (3 cred.; jr., sr., grad.; prereq. 10 cred.) (<i>Not offered</i>)
120s	Geography of Asia (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor)
125	<i>Geography of the Polar Regions</i> (3 cred.; jr., sr., grad.; prereq. 11 or permission of instructor) (<i>Not offered</i>)
133w	Climatology (3 cred.; jr., sr., grad.; prereq. 10 cred. incl. 11)

Primarily for Graduate Students

241	<i>Field Course</i> (<i>Not offered</i>)
251f	Seminar
252w	Seminar
253s	Seminar
301f,w,s	Research Problems

GEOLOGY AND MINERALOGY

Major advisers in the College of Science, Literature, and the Arts—Professors Thiel and Sharp.

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) Trigonometry and College Algebra; (3) Physics 4-5-6 or preferably 7-8-9 (Calculus is required for advanced courses in geophysics); (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 91-92-93, 118, 151-152-153.

§ 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.

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

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

Sequence C. Economic Geology. Courses 91-92, 110-111-112, 131.

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,w,s-2f,w,s† 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.)
- Af,w,s‡
Bf,w,s§‡ 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)
- 5f-6w Engineering Geology. (See the *Institute of Technology Bulletin*.)
- 8f,w,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.)
- 23f‡-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 course in chemistry)

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 25.

- 51 *Elements of Paleontology* (5 cred.; jr., sr.; prereq. 1 and Zool. 1-2-3) (*Not offered—offered in alternate years*)
- 61w Blowpipe Analysis. The determination of minerals by systematic blowpipe analysis (3 cred.; jr., sr.; prereq. 24)
- 91f-92w†-93s Invertebrate Paleontology. Morphology and classification of the more important fossil invertebrate genera (9 cred.; jr., sr.; prereq. 2 and 24)
- 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)
- 101f-102w Sedimentation. The origin of sedimentary rocks and their primary structures; interpretation of sediments in relation to paleogeography (6 cred.; jr., sr., grad.; prereq. 24)
- 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. 51 or 91)

† 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.

¶ 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.

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

- 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)
- 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)
- 107f-108w-109s Stratigraphic Paleontology. Study of the more important Paleozoic, Mesozoic, and Cenozoic faunas, together with their geographic and stratigraphic distribution (9 cred.; jr., sr., grad.; prereq. 93)
- 110f Principles of Economic Geology. The nature and genesis of mineral deposits; relation to geologic structure, and superficial alteration (3 cred.; jr., sr., grad.; prereq. 105)
- 111w Ore Deposits—Metallic and Nonmetallic. The mineralogy, origin, and distribution of the principal metals and nonmetallic minerals of economic value (3 cred.; sr., grad.; prereq. 110)
- 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. 152 and 125)
- 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)
- 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. 2)
- 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. 2)
- 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. 2)
- 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)
- 124w Metamorphic Geology. Conditions, processes, and results of weathering and metamorphism (3 cred.; jr., sr., grad.; prereq. 2 and 105)
- 125f Structural Geology. Study of the principle of geological structures and their application (3 cred.; jr., sr., grad.; prereq. 2 and 105)
- 131s-132f 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)
- 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)
- 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)
- 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)
- 145s Use and Interpretation of Aerial Photographs. Elements of aerial photographs, simple photogrametric procedures, planimetric maps from photos, normal and stereoscopic study, geological interpretation and field use (3 cred.; jr., sr., grad.; prereq. 2)
- 146f-147w Soil Mineralogy (8 cred.; jr., sr., grad.; prereq. one year of college chemistry)
- 150* Field Geology (Black Hills) June 15 to July 15. Detailed systematic work conforming to official surveys (Jr., sr., grad.; prereq. 125)
- 151f-152w-153s Stratigraphy. Distribution and nomenclature of Paleozoic, Mesozoic, and Cenozoic sedimentary rocks in North America, with emphasis on stratigraphic principles and methods; oral and written summary reports (9 cred.; jr., sr., grad.; prereq. 2 and 24)
- 161w Crystal Structures and Minerals. Use of X rays for identification and classification of minerals. Isomorphism and polymorphism. Application to mineral synthesis and mineral deposits (3 cred.; jr., sr., grad.; prereq. 121, elem. phys. and anal. geom.)

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

- 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)
 170f,w,s Geological Problems (3 cred.; jr., sr., grad.; prereq. permission of major adviser)

Refresher Courses for War Veterans

The following courses have been designed to fit the needs of students who entered military service before their major work was completed, and for those who took an accelerated program adopted as a war emergency measure. Some students were allowed to receive degrees without certain courses which are essential for competent professional work. These courses will aid in reorienting the student in the field of his major interest. No more than three of the following courses may be taken for credit by any one student. Students should consult a major adviser before registering.

- 113 Theory of Ore Deposits (3 cred.; sr., grad.; prereq. 112)
 117 Paleontologic Problems (3 cred.; sr., grad.; prereq. 109)
 122 Problems in Sedimentation (3 cred.; sr., grad.; prereq. 102)
 123 Advanced Mineralogy (3 cred.; jr., sr., grad.; prereq. 24)
 126 Advanced Structural Geology (3 cred.; sr., grad.; prereq. 125)
 142 Petrographic Problems (3 cred.; sr., grad.; prereq. 131)

For Graduate Students Only

- 211-212-213 Advanced Paleontology
 214 Seminar in Ore Deposits
 215 Advanced Principles of Ore Deposits
 216 Geology of the Ore Deposits of the Western Hemisphere
 241 Field Course in Geology
 243-244 Research Course in Geology
 245-246 Research Course in Sedimentation
 251-252 Original Mineralogical Problems
 253-254 Research Course in Ore Deposits
 263-264 Research Course in Petrology

GEOPHYSICS

See Physics, page 97.

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. 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,w,s-2f,w,s-3f,w,s||§ 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 must take Course 2; those offering two years must take Course 3)
- 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.)
- 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.)
- 4f,w,s§ Intermediate German (5 cred.; prereq. 3 or 3a, or 3b, or three years of high school German)
- 20f,w,s Reading and Speaking German. Short stories and plays are read to develop reading fluency; classes are conducted in simple German (5 cred.; prereq. German 4, four years of high school German, or equiv.)
- 24f-25w-26s Chemical German (9 cred.; chemists, miners; no prereq.)
- 24af-25aw-26as Chemical German (12 cred.; pharmacists and agricultural students; no prereq.)
- 27f-28w-29s Chemical Prose (9 cred.; chemists, pharmacists, miners; prereq. two years of high school German or one year of college German)
- 33f,w,s§ Medical German (5 cred.; premed.; prereq. 3 or 3a, or 3b)
- 41f-42w-43s Readings from German Chemical Periodicals (6 cred.; sr.; prereq. 26 or equiv.)

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 25.

- 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)
- 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)
- 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)
- 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)
- 59w,s German Pronunciation and Diction (Open only to candidates for the German play) (1 or 2 cred.; jr., sr.; prereq. 3)
- 60w,s 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)

§ 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.

- 61s 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)
- 62 *Nineteenth-Century Prose* (3 cred.; jr., sr.; prereq. 3 cred. above 59) (*Not offered*)
- 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)
- 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)
- 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)
- 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)
- 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.)
- 77 *Faust I* (3 cred.; jr., sr.; prereq. 63 and 3 additional cred. above 59) (*Not offered*)
- 80 *History of the German Language* (3 cred.; jr., sr.; prereq. 6 cred. above 60) (*Not offered*)
- 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*)
- 150-151-152 *Studies in German Literature of the Nineteenth Century: Die Novelle* (9 cred.; sr., grad.; prereq. 72 or equivalent and 11 cred. above 59) (*Not offered*)
- 153f-154w-155s Modern Literature. A survey from 1880 to the present (9 cred.; sr., grad.; prereq. 72 or equivalent and 11 cred. above 59)
- 160-161-162 *Lyric Poetry* (9 cred.; sr., grad.; prereq. 70-71-72 or equivalent and 11 cred. above 59) (*Not offered*)
- 163f-164w-165s 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)

COURSES IN LINGUISTICS AND PHILOLOGY

- 110f-111w-112s Middle High German. Linguistic introduction and readings in Middle High German literature (9 cred.; sr., grad.; prereq. 70 and 11 cred. above 59)
- 113-114-115 *Gothic and Old High German* (9 cred.; sr. with completed major sequence, grad.; prereq. 80 and 11 cred. above 59)
- 113 *Gothic. Introduction to German linguistics.* (The same as Scandinavian 113) (4 cred.) (*Not offered*)
- 114 *Gothic Texts.* (The same as Scandinavian 114) (2 cred.) (*Not offered*)
- 115 *Old High German* (3 cred.) (*Not offered*)
- 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*)

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

- 176f-177w 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)
- 183s Germanic Heroic Poetry. (The same as Scandinavian 183) (3 cred.; sr. grad.; prereq. 8 cred. in literature)
- 195 *Introduction to Old Norse Language and Literature*. Old Norse phonology and morphology. Survey of Old Icelandic history and literature. (The same as Scandinavian 195) (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)
- a. *German Baroque Literature: from the Renaissance to the Age of Reason* (*Not offered*)
 - b. *Goethe and the Middle-Class Tradition* (*Not offered*)
 - c. *Romanticism* (*Not offered*)
 - d. *Nineteenth Century Drama: Kleist, Grillparzer, Heibel* (*Not offered*)
 - e. *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)
- a. *Problems in Middle High German Literature* (*Not offered*)
 - b. *Texts in Germanic Dialects: Runic Inscriptions* (*Not offered*)
 - c. *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,w-2w,s-3f,s 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.)
- 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.)
- 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.)
- 14f-15w-16s Ancient Civilization (9 cred.; no prereq.)
- 14Af-15Aw-16As Ancient Civilization with Basic Readings (15 cred.; no prereq.) (This course is a combination of History 14-15-16 and Classics 14-15-16. See page 48.)
- 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.)
- 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.)

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.

Courses 70-71-72 is open to prelegal sophomores who have completed Course 4-5-6 or Course 1-2-3 with a grade of at least C, and also to prelegal sophomores who have an average grade of C in all their work, even if that work includes no course in history. 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 25.

- 50-51-52 *History of Greece to 200 B.C.* (9 cred.; jr., sr.) (Not offered)
- 50af-51aw-52as *History of Rome* (9 cred.; jr., sr.)
- 50b-51b-52b *History of the Ancient Near East* (9 cred.; jr., sr.) (Not offered)
- 53-54-55 *Medieval European History*. 53: Decline of the Roman Empire; 54: The Feudal Age; 55: The Crusades, Gothic Architecture, Thomas Aquinas (9 cred.; jr., sr.) (Not offered)
- 53af-54aw-55as *Renaissance and Reformation*. 53a: The Age of Dante and Petrarch; 54a: Italian Renaissance; 55a: The European Renaissance and Reformation. (9 cred.; jr., sr.)
- 56f-57w-58s *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.)
- 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 reform of Alexander II; 58as: From Alexander II to the present (9 cred.; jr., sr.)
- 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)
- 59-60-61 *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.) (Not offered)
- 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.)
- 67aw-67bs *World War II* (6 cred.; jr. with credit in 66-67, sr. or consent of instructor)
- 68w-69s *American History since 1900* (6 cred.; jr., sr.)
- 68af-69aw *The Immigrant in American History and Life*. A chapter in social, religious, cultural, and political history (6 cred.; jr., sr.)
- 70f,w-71w,s-72f,s *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.)
- 73f-74w-75s *Modern England. Tudor and Stuart Periods*. 73f: 1485-1588: From Henry VII to the defeat of the Spanish Armada; 74w: 1588-1642: From the Spanish Armada to the English Civil Wars; 75s: 1642-1714: From the Civil Wars to the death of Queen Anne (9 cred.; jr., sr.)
- 73a-74a-75a *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.) (Not offered)
- 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.)
- 79af-79bw-79cs *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 N.R.O.T.C. students, but it will be open to a limited number of civilian students (9 cred.; jr., sr.; no prereq.)
- 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.)
- 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.)
- 83as *American Agricultural History*. Development of American agriculture from the Colonial period to the present (3 cred.; soph., jr., sr.)
- 86f-87w-88s *American Colonies*. 86f: In the Seventeenth Century; 87w: In the Eighteenth Century; 88s: The Revolutionary Crisis (9 cred.; jr., sr.)
- 86af-87aw-88as *Social and Intellectual History of the United States* (9 cred.; jr., sr.)
- 89w *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.)
- 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.)
- 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.)

- 93af-94aw-95as Survey of Latin-American History. 93af: The Colonial Period; 94w: The Latin-American Republics; 95as: Recent Latin-American History (9 cred.; jr., sr.)
 97f-98w-99s Minnesota and the Northwest (9 cred.; jr., sr.)

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 Bourgeoisie society; 132: Industrialization and the modern society (9 cred.; jr., sr., grad.) (*Not offered*)
 135-136-137 *Cultural History of Egypt* (9 cred.; jr., sr., grad.) (The same as Anthropology 135-136-137) (*Not offered*)
 143f-144w-145s American Folklore (9 cred.; jr., sr.)
 150f-151w-152s Selected Readings in Ancient History (9 cred.; sr., grad.)
 153f-154w-155s Selected Readings in Medieval and Renaissance History (9 cred.; jr., sr., grad.)
 156f-157w-158s Selected Readings in European History (9 cred.; sr., grad.)
 World War II
 Seventeenth Century France (pre-req. reading knowledge of French)
 Russian History (prereq. 56a-57a-58a and reading knowledge of Russian, German, or French, or consent of instructor)
 170f-171w-172s Selected Readings in English History. Tudor and Stuart periods (9 cred.; sr., grad.)
 176-177-178 *Selected Readings in Canadian History* (9 cred.; sr., grad.) (*Not offered*)
 180f-181w-182s Selected Readings in European Economic History to 1700 (9 cred.; sr., grad.)
 183f-184w-185s Selected Readings in American Economic History (9 cred.; sr., grad.)
 190f-191w-192s Selected Readings in American History (9 cred.; sr., grad.)
 Third Party Movements since the Civil War
 Some Phases of Early American Social and Intellectual History
 The Mississippi Valley
 Minnesota (*Not offered*)
 Social Aspects of American History with Special Reference to the Northwest (*Not offered*)

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)
 208f-209w-210s Seminar in American History (9 cred.)
 221f-222w-223s Seminar in Economic History (9 cred.)
 224f-225w-226s Seminar in Modern European History (9 cred.)
 230f-231w-232s Seminar in Ancient History (9 cred.)
 240f-241w-242s Seminar in Latin American History (9 cred.)

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,w,s	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 seniors; not open to students having had Gen.Coll. 15A; no prereq.)
2f	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.Ad., and ArtEd.; no prereq.)
20f,w,s	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 seniors; no prereq.)
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.)
31f,w,s	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 seniors; no prereq.)
34f,s	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.)

Senior College Courses

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.; courses must be taken in the sequence indicated.) (Limited to 24)
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)

HOW TO STUDY

See General Studies, page 62.

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 *Curriculum in Liberal Arts* which are stated in the *Bulletin of the College of Science, Literature, and the Arts for 1946-47*. 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.

* 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.

3. Nine Senior College credits in Fine Arts 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, fine arts, 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 60. For all other courses in the division, see the separate departments mentioned in the above lists of requirements.

ITALIAN

See Romance Languages, page 109.

JAPANESE

- | | |
|-------------|---|
| 1f-2w-3s | Beginning Japanese. 1f: Introduction to conversational Japanese using romaji; 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.) |
| 51f-52w-53s | Advanced Japanese. Study of grammatical construction; drill in conversation; reading Japanese text (3 cred.; jr., sr.; prereq. 3) |
| 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) |

JOURNALISM

SCHOOL OF JOURNALISM

Major advisers in the College of Science, Literature, and the Arts—Professors Casey, Barnhart, Charnley, Gerald, and Nafziger; Associate Professor Ford; Assistant Professors Kildow and Emery; Instructors Hage, Janson, Jensen, 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 9). 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 Arts College 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; press association work; magazine writing, editing and administration; book editing and publishing; agricultural or home economics journalism; radio news editing and script writing; 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) substantially as follows:

1. English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (9 credits) or exemption from the requirement.
2. French, German, or Spanish to meet the foreign language requirement.
3. Social Science 1-2-3 (Introduction to Social Science) or economics or history or political science or sociology to meet the social science requirement.
4. Natural Science 1-2-3 (Orientation in the Natural Sciences) or psychology (with laboratory) or zoology to meet the natural science requirement.
5. Public Health 3 (Personal Health, 2 credits).
6. Advanced Writing (Composition 27-28); Introduction to Reporting (Journalism 13) and Newspaper Reporting (Journalism 14-15), which are prerequisites for the Senior College major sequence in journalism.
7. Electives to make the required total of 84 to 90 credits. Political Science 1-2, Economics 6-7 or History 20-21-22 is strongly recommended. Other electives recommended as providing, in most cases, a sound foundation for major work in journalism, are: Political Science 7 and 25; Sociology 1 and 2; Psychology 1-2; History 1-2-3; Social Science 1-2-3; Natural Science 1-2-3 or 4-5-6; two or more quarters of Humanities; Geography 11 and 41; English 37-38-39.

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

Major sequence in the College of Science, Literature, and the Arts—Courses 51-52, 55, 73, 101, 109-110, 112, 140-141, and 9 additional credits in journalism chosen in conference with the adviser. (*A modified major sequence for students specializing in newspaper management and advertising is 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 newspaper management and advertising specialization—Courses 51, 55, 65, 73, 86, 94, 95, and 112; and 15 additional credits chosen in conference with the adviser from among 78, 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.

For students with major interests in radio news editing, radio script writing, radio advertising and like work, a special sequence of journalism courses, supplemented by selected speech courses, is provided.

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, 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.

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 (in this bulletin) 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.)
10f,w,s,††	Photography. Fundamental principles of photography: the use of cameras, developing, printing and other elementary techniques (the same as Fine Arts 10) (3 cred.; soph., jr., sr.; no prereq.)
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)
12	<i>Newspaper Reporting</i> (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) (<i>Not offered</i>)
13f,w	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)
14w,s-15f,s†	<i>Newspaper Reporting</i> (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§)

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

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

§ May be taken at the same time.

- 41w† Editing for Nonmajors (not open to S. L. and A. students without permission of the director of the School of Journalism) (3 cred.; jr., sr.; prereq 11 or 13)

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 25.

- 51f,w,s†† News Editing (3 cred.; jr., sr.; prereq. 14 and Senior College standing)
- 52f,w,s††† News Editing (3 cred.; jr., sr.; prereq. 51 and 55)
- 55f,w,s††† Advertising and Newspaper Typography (3 cred.; jr., sr.; prereq. for journalism majors, Senior College standing: for minors, 11 or 13 and 41)
- 58w†† Advanced Typography. Individual projects in advertising composition, newspaper makeup, and booklet planning (2 cred.; jr., sr.; prereq. 55 and consent of instructor)
- 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)
- 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)
- 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)
- 67f,w,s†† Radio News Writing. The gathering, writing, and editing of news for broadcast; "backgrounding" and commenting on the news. In laboratory, students edit news programs for KUOM (3 cred.; jr., sr.; prereq. 15)
- 68s†† Problems in Radio Writing. The radio audience and its responses; planning and writing scripts in advertising, dramatic, 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)

* This course is one of the three related courses of special interest to students of journalism and advertising. The other two, listed elsewhere in this bulletin, are Drawing 64w, Graphic Arts, and Business Administration 194s, Advanced Advertising Procedure.

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

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

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

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

- 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)
- 94w,s 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)
- 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)
- 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)
- 101w,s 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)
- 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)
- 104s Advanced Newspaper Advertising. Advanced work in copy testing methods; sales programs and newspaper sales promotion; advertising salesmanship (2 cred.; jr., sr., grad.; prereq. 51, 94, and consent of instructor)
- 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)
- 111f International Communications and the Foreign Press. A study of international news channels, including communications facilities, the newsgathering agencies, and the foreign press. 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 of political science course in international relations, or consent of instructor)
- 112s Current Newspaper Problems. The individual project method is used for analyses of journalistic problems of current importance in the light of their social, economic, and technological environment. This course is conducted in small seminar-like groups (3 cred.; sr., grad.; prereq. 51)
- 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)
- 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)
- 130f-131w Communication Agencies and Public Opinion. The major agencies of communication—press, radio, 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)
- 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 background of the news (6 cred.; sr., grad.; prereq. 51 and 10 cred. in the social studies or consent of major adviser in journalism)
- 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)

- 177s Freedom of the Press and Communication 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 news-gathering and news dissemination. The problems of international freedom of press and radio (3 cred.; jr., sr.; prereq. 51 or consent of instructor)

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)
- 210f,w,s Research in Newspaper Problems (2 or 3 cred.; seminar course for grad. students; prereq. consent of director of the school)

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); 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. 61C, 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 114, Rural Social Institutions.‡

Library tuition—(For all Library courses except Lib. 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.)

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

‡ A fee of \$1 per credit is charged for the following courses: Ed. 61C, Ed.C.I. 104, Ed.C.I. 105, Ed.C.I. 113, Ed.C.I. 119.

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.)
- 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.)
- 52w History of Publishing. Publishers and publishing from the sixteenth century to the present (2 cred.; no prereq.)
- 53s School Library Administration. The organization and management of libraries in schools (3 cred.; prereq. Ed. 51A-B-C, or Ed.Ad. 263, or Pol.Sci. 121)
- 54s Public Library Administration. Management problems in public libraries; finance, personnel, equipment, extension work, etc. (3 cred.; prereq. Pol.Sci. 121)
- 55s College Library Administration. A survey of administrative problems in libraries of institutions of higher education (3 cred.; prereq. Pol.Sci. 121)
- 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.)
- 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)
- 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.)
- 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)
- 62f* Reference I. General reference tools and other sources of information in reference work; theory and practice of reference work (2 cred.; no prereq.)
- 63w* Reference II. Reference work in subject fields; the reference department; practical bibliography (3 cred.; prereq. 62)
- 64s Reference III. Specialized reference tools; government publications; administration of the reference department; special problems in large libraries (2 cred.; prereq. 62, 63)
- 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.)
- 66w 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.)
- 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.)
- 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)
- 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)
- 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)
- 74s 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.)
- 76s Library Service in Hospitals. Organization and technical methods suitable for hospital libraries (3 cred.)
- 77s Book Selection for Hospital Patients. Criticism and discussion of reading suitable for varied types of patients (3 cred.)
- 78s Reading and the Mental Patient. Special problems of work with varied types of mental patients (2 cred.)
- 79s Medical Reference Work. Reference books and technical methods for hospital staffs (3 cred.)

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

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

- 80s*§f 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)
- 81f*§ Theory of Bibliography. Introduction to the description and arrangement of books in catalogs, bibliographies, and on library shelves (2 cred.; no prereq.)
- 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.; prereq. 81)
- 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)
- 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)
- 126s Subject Bibliography. The bibliography of subject fields; standard works, current lists, and bibliographical manuals (3 cred.)

LINGUISTICS AND COMPARATIVE PHILOLOGY

Major adviser in the College of Science, Literature, and the Arts—To be announced.

Major sequence in the College of Science, Literature, and the Arts—Courses Ling. 106-107, Ling. 105 or 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

- Ling.105 *Phonetics* (The same as Anthropology 105) 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*)
- Ling.106f, 107w Introduction to the Study of Language (The same as Classics 106, 107) (3 cred. per quarter; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language)
- Ling.108s Cultural Aspects of Language (The same as Classics 108) (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language)
- Ling.109s Analysis of Language. Special attention will be directed to non-Indo-European languages (The same as Anthropology 109) (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language)

CELTIC

- Ling.134f-135w-136s 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)

CLASSICS

- Classics 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)
- Classics 242 *Historical Latin Grammar* (3 cred.) (*Not offered*)

ENGLISH

- Eng.100f Old English (4 cred.; jr., sr., grad.; prereq. 6 cred. above 50)
- Eng.102w Old English Poetry (3 cred.; jr., sr., grad.; prereq. 100)
- Eng.103s Beowulf (3 cred.; jr., sr., grad.; prereq. 100)
- Eng.165f Introduction to Modern English (3 cred.; jr., sr., grad.; prereq. 6 cred above 50; not open to students who have taken 100)
- Eng.171f-172w-173s The Rise and Development of Standard English (6 cred.; sr. with consent of instructor, grad.; prereq. 100)
- Eng.174s American English (3 cred.; jr., sr., grad.; prereq. 6 cred. above 50)

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

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

¶ This practice will be a six-week internship in approved hospitals. The specific arrangements will be made by Miss Methven after the close of the class work early in June. This internship is required of all candidates for degrees or certificates.

FRENCH

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

GERMAN

- Ger.110f-111w-112st Middle High German. Linguistic introduction and readings in Middle High German literature (9 cred.; sr., grad.; prereq. 70 and 11 cred. above 59)
- Ger.113-114 *Gothic* (The same as Scandinavian 113-114) (6 cred.; sr. with completed major sequence, grad.)
- 113 *Gothic*. Introduction to Germanic linguistics and to a comparative study of Indo-European languages. (4 cred.; sr. with completed major sequence; grad.) (Not offered—Offered in 1948-49)
- 114 *Gothic Texts* (2 cred.; prereq. 113) (Not offered—Offered in 1948-49)
- Ger.115 *Old High German* (3 cred.; sr. with completed major sequence; grad.; prereq. German 113) (Not offered)
- 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.176f-177w Problems and Research Trends in Germanic Philology (6 cred.; sr., grad.; prereq. at least two medieval Germanic dialects)
- 176f *The Germanic Languages* (3 cred.)
- 177w *The Germanic Literary Tradition*. A comparative discussion of the native and foreign records of the Old Germanic period (3 cred.)
- Ger.178 *The German Dialects* (3 cred.; sr., grad.; prereq. German 110-111-112 or 113) (Not offered)
- Ger.194 *Old Saxon* (3 cred.; sr., grad.; prereq. German 113) (Not offered)
- 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.128f-129w-130s 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)
- Ling.131-132 *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) (Not offered)

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* (The same as German 195) (4 cred.; sr., grad.; prereq. German 113 or permission of the instructor) (Not offered)
- Scand.196 *Eddic Poetry. Philological interpretation* (3 cred.; sr., grad.; prereq. Scand. 195) (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.; prereq. two courses above 50 in any foreign language)

SPANISH

- Span.241-242-243 *Old Spanish Philology* (6 cred.; grad.) (Not offered)

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

MARRIAGE

See General Studies, page 60.

MATHEMATICS

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

Major sequence in the College of Science, Literature, and the Arts—Courses 50, 51, 62, 105; 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 Bussey.

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,w,s* 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)

* 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.

- 6f,w,s** 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)
- 7f,w,s¶** 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)
- 8f,w,s*¶ 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 other topics of logical interest (5 cred.; primarily for prebusiness students* but open also to others; prereq. 1, or high school higher algebra§)
- 15f,w-16w,s** 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§)
- 20w,s* Mathematics of Investment. Simple interest and simple discount, compound interest, annuities with simple data, extinction of debts by periodic instalments, bonds, depreciation, perpetuities, capitalization, general annuity formulas (5 cred.; prereq. 8, or 6 and 7, or 15 and 16)
- 21s 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)
- 30f,w,s 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)
- 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. 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 25.

- 50f,w,s 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)
- 51w,s 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)
- 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)
- 62w Introduction to the Theory of Equations. A study of complex numbers, solution of algebraic equations, analytic criterion for constructibility with rulers and compasses alone (3 cred.; jr., sr.; prereq. 50 or registration in 50 and consent of instructor)
- 70 *History of Elementary Mathematics* (3 cred.; jr., sr.; prereq. 30) (Not offered)

* Prebusiness students who elect mathematics to meet the requirements 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.

- 102-103 *Advanced Analytical Geometry* (6 cred.; jr., sr., grad.; prereq. 51) (*Not offered*)
- 105f,s 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)
- 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)
- 107w-108s Advanced Calculus. 107w: 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; 108s: Line and surface integrals; Stokes' and Green's theorems; exact differentials; Beta and Gamma functions; Fourier series (6 cred.; jr., sr., grad.; prereq. 105 and either some acquaintance with solid analytic geometry or consent of instructor)
- 109f 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)
- 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)
- 115 *Differential Geometry* (3 cred.; jr., sr., grad.; prereq. 136) (*Not offered*)
- 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*)
- 119w-120s 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)
- 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)
- 125s 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)
- 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)
- 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)
- 140w 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)
- 142 *Theory of Invariants* (3 cred.; jr., sr., grad.; prereq. 131 or 137) (*Not offered*)
- 144f-145w-146s 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)
- 149 *Introduction to Group Theory* (3 cred.; jr., sr., grad.; prereq. 51, 62) (*Not offered*)

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. 108 or consent of instructor)

- 209f 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)
- 212w-213s 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)
- 241-242-243 *Series and Integral Solutions of Differential Equations* (9 cred.; grad.; prereq. 208) (Not offered)
- 245f-246w-247s Advanced Theory of Functions. 245f: A general theory of measure and integration is developed and at the same time specialized at each stage so as to give the Lebesgue and Wiener integrals; 246w: The general theory is continued and applied to multiple integrals (the Fubini theorem); and the fundamental theorem of the integral calculus is proved for Lebesgue integrals; 247s: Fourier series and integrals are presented from the Lebesgue standpoint, and the transformation theory for Wiener integrals is developed and applied to the calculation of specific integrals (9 cred.; grad.; prereq. 208)
- 271-272-273 *Theory of Linear Differential and Integral Equations* (9 cred.; grad.; prereq. 206 or registration in 206) (Not offered)

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 AND NAVAL SCIENCE AND TACTICS

The programs in Military Science and Tactics and in Naval Science and Tactics are 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 these programs, consult the *General Information Bulletin*. For the specific courses offered, see the appropriate section of the *Combined Class Schedule*.

The College of Science, Literature, and the Arts will accept credits from junior and senior courses in Military or Naval Science and Tactics to fulfill a minor toward the B.A. degree.

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 9; 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 11), 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 89.

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.

* 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.

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. Courses 50-51-52, 53-54-55, 56-57-58, 60-61-62 or 63-64-65, 76.
- B. Courses 56-57-58, 60-61-62 or 63-64-65, 73-74-75, 76, 77-78-79.
- C. Courses 56-57-58, 60-61-62 or 63-64-65, 70-71-72, 76, 80-81-82.

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 see the program of the College of Education in this bulletin.

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
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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 quarter.....	.50

Small organ and practice room, per hour.....	.20
Large organ and practice room, per hour.....	.40
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.

Junior College Courses

1Tf,w-2Tw,s-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)
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)
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.)
7w-8s	Counterpoint (6 cred.; soph., jr., sr.; prereq. 1T-2T-3T)
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.)
34f-35w-36s¶	History of Music (6 cred.; soph., jr., sr.; no prereq.)
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)
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)
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)
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.)
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 on average from 3 to 12 appearances each quarter (3 cred.; prereq. consent of director)

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 above.

The first twelve credits in any one of Courses 11 to 27 count as Junior College credits; additional credits count as Senior College credits.

* Students may not take special examinations in practical music (Music 11-27) for work done elsewhere while they are in residence at the University.

§ 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.

Af-Bw-Cs‡§	Piano (No cred.; for students without entrance requirements for piano; no prereq.)
Df-Ew-Fs‡§	Voice (No cred.; for students without entrance requirements in voice; no prereq.)
11f,w,s‡	Piano—Individual Lessons (2-4 cred. per qtr.)
11Cf,w,s‡	Piano—Class Lessons (2-4 cred. per qtr.)*
12f,w,s‡	Voice—Individual Lessons (2-4 cred. per qtr.)
12Cf,w,s‡	Voice—Class Lessons (2-4 cred. per qtr.)*
13f,w,s‡	Violin (2-4 cred. per qtr.)
14f,w,s‡	Viola (2-4 cred. per qtr.)
15f,w,s‡	Cello (2-4 cred. per qtr.)
16f,w,s‡	Double Bass (2-4 cred. per qtr.)
17f,w,s‡	Flute (2-4 cred. per qtr.)
18f,w,s‡	Oboe (2-4 cred. per qtr.)
19f,w,s‡	Clarinet or Saxophone (2-4 cred. per qtr.)
20f,w,s‡	Bassoon (2-4 cred. per qtr.)
21f,w,s‡	Trumpet (2-4 cred. per qtr.)
22f,w,s‡	French Horn (2-4 cred. per qtr.)
23f,w,s‡	Trombone (2-4 cred. per qtr.)
24f,w,s‡	Tuba (2-4 cred. per qtr.)
25f,w,s‡	Percussion (2-4 cred. per qtr.)
26f,w,s‡	Harp (2-4 cred. per qtr.)
27f,w,s‡	Organ (2-4 cred. per qtr.)

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 25.

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)
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)
56f-57w-58s	Bach and Beethoven (9 cred.; sr.; prereq. 34-35-36)
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.)
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)
66f-67w-68s	Choral Chamber Group. A study through performance of choral literature for small vocal groups (3 cred.; prereq. consent of instructor)
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)
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)
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)
77f-78w-79s	Composition. Creative work in musical forms (6 cred.; jr., sr.; prereq. 6T, 7-8)
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)
83f-84w-85s	Advanced Composition (6 cred.; sr.; prereq. 77-78-79)
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)
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)

* 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 89.

§ May be taken only with the consent of director.

- 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)

For Graduate Students Only

- 200f-201w-202s Basis of Musical Expression (9 cred.; grad.; prereq. 56-57-58)
 205f-206w-207s Composition in Larger Forms (9 cred.; grad.; prereq. 83-84-85)
 209f-210w-211s Advanced Topics in Musical Analysis (9 cred.; grad.; prereq. 76)
 212f,w,s Special Problems in Music (3 to 9 cred.; grad.; prereq. 202 or 211)

MUSIC EDUCATION

The following courses in Music Education are regularly open to students in the College of Science, Literature, and the Arts:

- Mu.Ed.63f,w‡ 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)
- 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)
- 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)

NATURAL SCIENCE

See General Studies, page 62.

NAVAL SCIENCE AND TACTICS

See Military and Naval Science and Tactics, page 88.

NORWEGIAN

See Scandinavian, page 84.

PERSONAL ORIENTATION

See General Studies, page 62.

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 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

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

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 curriculum in liberal arts which is indicated in this bulletin, page 125. Philosophy advisers may be consulted with regard to this curriculum.

For Mr. Castell's course, Humanities Proseminar, see page 61; and for other courses in Humanities, see pages 60-61.

Junior College Courses

- 1f,w,s 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.)
- 1Af,w,s** Selected Problems of Philosophy. An abbreviated treatment of some material of Course 1 (3 cred.; open to some fr.* and to soph., jr., sr.; no prereq.)
- 2f,w,s 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.)
- 2Af,w,s** Selected Problems of Logic. An abbreviated treatment of some material of Course 2 (3 cred.; open to some fr.* and to soph., jr., sr.; no prereq.)
- 3f,w,s 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.)
- 3Af,w,s** Selected Problems of Ethics. An abbreviated treatment of some material of Course 3 (3 cred.; open to some fr.* and to soph., jr., sr.; no prereq.)
- 10f 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.)
- 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 25.

- 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.)

* 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.

** There will be a special section for prelegal students. See *Combined Class Schedule*.

- 59w Aesthetics. 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.)
- 70ff 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.)
- 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. (The same as Social Science 71) (5 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.) (Formerly Philosophy 21s)
- 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*)
- 81-82-83 *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. (The same as Natural Science 81-82-83) (Formerly 80-81-82) (9 cred.; designed primarily as a senior integrative course, but open to juniors on consent of instructor; no prereq.) (*Not offered*)
- 101-102-103 *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.) (*Not offered*)
- 106f-107w Plato. A study of the philosophy of Plato based on an analysis of the major dialogues (6 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or consent of instructor)
- 108s 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)
- 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)
- 111 *Empiricism. Philosophies of Locke, Berkeley, Hume* (3 cred.; jr., sr., grad.; prereq. two courses from 50-51-52 or consent of instructor) (*Not offered*)
- 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*)
- 112w 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. one course from 50-51-52 or consent of instructor)
- 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)
- 114w American Philosophy from 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)
- 115s 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)
- 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. one course from 50-51-52 or consent of instructor)
- 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)

- 135s Philosophy in Modern Literature. A survey of the basic philosophical ideas in twentieth century civilization as they are expressed in major works of contemporary literature. Lectures on Spengler, Marx, Darwin, Freud, and others. Readings and discussions of Ibsen, Proust, Joyce, Tolstoy, Shaw, Huxley, Dostoevski, and others (3 cred.; jr., sr., grad.; prereq. consent of instructor)
- 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)
- 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)
- 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)
- 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)
- 164 *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) (*Not offered*)
- 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)
- 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.)
- 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.)
- 181w Psychology of Religion. Current interpretations of religious experience and behavior, according to various psychologies (3 cred.; jr., sr., grad.; prereq. 6 cred.)
- 182s Philosophy of Religion. Discussion of the ground and sanctions of religion, according to various philosophies (3 cred.; jr., sr., grad.; prereq. 6 cred.)
- 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)

Courses Primarily for Graduate Students

- 191f-192w-193s See above
- 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)
- 241f-242w-243s Seminar: Philosophy of the Physical Sciences (3 cred. per qtr.; prereq. consent of instructor)
- 244f-245w-246s Seminar: Philosophy of Biology and Psychology (3 cred. per qtr.; prereq. consent of instructor)
- 247-248-249 *Seminar: Logic of the Exact Sciences* (3 cred. per qtr.; prereq. consent of instructor) (*Not offered—offered in alternate years*)
- 250-251-252 *Seminar: Philosophy of the Social Sciences* (3 cred. per qtr.; prereq. consent of instructor) (*Not offered—offered in alternate years*)

PHYSICAL EDUCATION FOR MEN

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 1ABC 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. 1Af: Touchball, volleyball, boxing, badminton, beginning swimming, and adapted activities; 1Bw: Wrestling, handball, squash, basketball, beginning swimming, and adapted activities; 1Cs: Swimming, track, softball, tennis, and adapted activities (1 cred. per qtr.; no prereq.)
- 2Af-Bw-Cs Sports Education. The program in Sports Education 2ABC offers an opportunity to develop proficiency in an elected recreational sport in which the student has had previous experience. 2Af: Bowling, intermediate and advanced swimming, wrestling, boxing, and weight lifting; 2Bw: Bowling, intermediate and advanced swimming, badminton, wrestling, weight lifting, and basketball; 2Cs: Intermediate or advanced swimming, life saving, track, tennis, golf, softball, boxing, and handball and squash (1 cred. per qtr.; prereq. 1ABC or permission of instructor)

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.

- 1f,2w,3s,
4f,5w,6s‡ College Program in Physical Education.
- 1f and 4f:
 Aquatics—Beginning, intermediate, and advanced swimming, and Red Cross life saving
 Body Building—Individual body building and posture and conditioning exercises
 Individual Sports—Elementary archery, elementary and intermediate badminton, bowling, fencing, social games and mixers, elementary, intermediate, and advanced tennis
 Rhythms—Ballroom dance, square and round dancing, elementary, intermediate, and advanced modern dance
 Team Sports—Volleyball and field hockey
- 2w and 5w:
 Aquatics—Beginning, intermediate, and advanced swimming and diving
 Body Building—Individual body building
 Individual Sports—Elementary and intermediate badminton, bowling, fencing, rifle marksmanship, skating, and skiing
 Rhythms—Ballroom dance, tap dance, square and round dance, and elementary, intermediate, and advanced modern dance
 Team Sports—Basketball and volleyball
- 3s and 6s:
 Aquatics—Canoeing, elementary, intermediate, advanced swimming and diving, Red Cross life saving, and a water safety instructors' course
 Body Building—Individual body building
 Individual Sports—Intermediate archery, elementary, intermediate, and advanced golf, and elementary, intermediate, and advanced tennis
 Rhythms—Square and round dance, and elementary, intermediate, and advanced modern dance
 Team Sports—Softball
- 8f,s‡‡ Horseback Riding

The following course is open, with credit, to students in the College of Science, Literature, and the Arts:

- 54s‡‡‡ Camp Leadership (2 cred.; no prereq.)

‡ A physical education fee of \$1.75 is charged for this course.

‡‡ See instructor for special charge for this course. No course fee is charged.

‡‡‡ A physical education fee of \$1.75 per quarter is charged for this course.

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, and Mathematics 50, 51, and 106.

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 course 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.

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)
- 1af-2aw†-3aff Introduction to Physical Science—with laboratory included. Fulfills the laboratory-science group requirement in Science, Literature, and the Arts (12 cred.; prereq. high school algebra and plane geometry)
- 4f,s-5w-6f,s‡ 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.)
- 7f,w,s-8f,w-9f,w,s‡ 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.)

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 statement on page 25.

- 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)
- 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)

† 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.

§ See statement about prerequisites above.

- 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)
- 110w-112s†‡ 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)
- 114f-116w-118s‡ 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 (9 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51)
- 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)
- 113w 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)
- 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)
- 135 Spectroscopy. Light sources, instruments and methods used in spectroscopy of the X ray, ultra-violet, visible, and infra-red 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 infra-red, visible, and ultra-violet regions of the spectrum (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics)
- 144f‡ Electricity Measurements. An experimental course covering ballistic and current galvanometers, magnetic flux measurements, potentiometer methods, D.C. bridges, and audio-frequency A.C. bridges (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51)
- 146 Physics of Vacuum Tubes and Associated Circuits. Thermionics. (3 cred.; prereq. 144 and permission of instructor) (*Not offered*)
- 181f-183w-185s Atomistics and Elementary Quantum Mechanics. Review of mechanics and electrodynamics 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 or permission of instructor)
- 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, registration in Math. sequence 106-107-108 or equivalent)

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

- 2f* Elements of Physiology (4 cred.; primarily for students of nursing‡; no prereq.)
- 4f,s* Human Physiology (4 cred.; prereq. 1 qtr. zool., 1 qtr. chem.)

* Will not count for credit for admission to the Medical School except by permission of the dean of that school.

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

§ Others may be admitted by special permission.

¶ Students may enter any quarter.

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 25.

58w*	Human Physiology (5 cred.; primarily for dental students§; sr.; prereq. zool. and Physiol. Chem. 56, 57)
59s*	Human Physiology (5 cred.; sr.; prereq. 58 or equiv.)
60s	Human Physiology (6 cred.; primarily for Medical Technology and 5-year nursing students)
103f¶	Physiology of Circulation, Respiration, etc. (9 cred.; jr., sr.; prereq. zool. and org. chem.; primarily for medical and graduate students)
104w¶	Physiology of Endocrines, Nervous Systems, etc. (16 cred.; lect. only, 4 cred.; jr., sr.; prereq. 103 or org. chem. and neurology; primarily for medical and graduate students)

For other courses see the bulletin and programs of the Medical School.

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 25.

50f	Physiological Chemistry (4 cred.; primarily for phys. ed., dental hygiene, and nursing students§; jr., sr.; prereq. inorganic chemistry)
57w	Physiological Chemistry (2 cred.; jr., sr.; prereq. 100)
100f	Physiological Chemistry (7 cred.; jr., sr.; prereq. org. chem. and physics)
101w	Physiological Chemistry (6 cred.; jr., sr.; prereq. 100)

POLITICAL SCIENCE

Major advisers—Professors Anderson, Quigley, and Short; Associate Professors Christensen, Latham; Assistant Professors Levi, 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.

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 at least 3 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

* 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.

¶ Students may register for lectures without laboratory.

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 taking the place of a major sequence 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 bulletin on Preparation for Foreign Service; consult Mr. Quigley, Mr. Christensen, Mr. Levi, or Mr. McLaughlin.

Major in area study—A program of area study adaptable to both cultural and professional objectives and available through several departments is now in effect. Typical areas of concentration are the Far East and Latin America. Consult Mr. Quigley, Mr. Christensen, or Mr. McClosky.

All students who intend to pursue studies for a graduate degree in political science are strongly urged to prepare themselves adequately in at least one appropriate foreign language. Consult major advisers.

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 adviser in the College of Education—Professor Kirkpatrick.

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,w-2w,s†-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.)
5f,w,s§	American Government and Politics (Covers most of Course 1-2) (5 cred.; no prereq.)
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.)

† 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.

- 9f-10w†* Fundamentals of Government and Politics. An introduction to the nature of political authority; a comparison of the major features of American government with governmental organization of other nations, and an analysis of the conflict between democracy and dictatorship (6 cred.; no prereq.)
- 15f,w,s Elements of Political Science. The nature and functions of the state; sovereignty and liberty; constitutions, forms of government (3 cred.; no prereq.)
- 25f,s World Politics. Introduction to contemporary international relations; the policies of the great powers; nationalism; imperialism; internationalism (3 cred.; no prereq.)

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.
- 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.)
- 85s Problems of World Politics (3 cred.; jr., sr.; prereq. 25 or Hist. 1-2-3 or consent of instructor)
- 91f-92w-93s Honors Work in Selected Fields (Cred. ar.; jr., sr.; prereq. 18 cred.; consult major advisers)
- 97s American and European Colonies of Today (3 cred.; jr., sr.; prereq. 6 cred. or consent of instructor)
- 101f Principles of the American Constitution I. The nature of constitutions, judicial review, national, state, and interstate relations (3 cred.; jr., sr., grad.; prereq. Pol. Sci. 1-2 or equiv.)
- 102w Principles of the American Constitution II. Organization and powers of the national government (3 cred.; jr., sr., grad.; prereq. 101 or equiv.)
- 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.)
- 104f-105w-106s 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)
- 108w Legislative Organization and Procedure. A study of Congress and the state legislatures at work (3 cred.; jr., sr., grad.; prereq. 6 cred.)
- 116f Local Government: Areas and Organization (3 cred.; jr., sr., grad.; prereq. 9 cred. or consent of instructor)
- 117w Local Government: Politics, Major Functions, Administration, and Central Supervision (3 cred.; jr., sr., grad.; prereq. 116 or consent of instructor)
- 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)
- 120f Municipal Functions (3 cred.; jr., sr., grad.; prereq. 6 cred.)
- 121w Municipal Administration (3 cred.; jr., sr., grad.; prereq. 120 or consent of instructor)
- 122s Municipal Problems (3 cred.; jr., sr., grad.; prereq. 121 or consent of instructor)
- 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 104 (3 cred.; sr., grad.; no prereq.)
- 124w-125s Recent Social Legislation. With special reference to the fields of social security, labor, housing, and health (6 cred.; jr., sr., grad.; prereq. 6 cred.)
- 126w-127s Government and the Economic Order (6 cred.; jr., sr., grad.; prereq. 9 cred.)
- 131f Public Administration: Organization and Areas, Administrative Responsibility (3 cred.; jr., sr., grad.; prereq. 6 cred.)

* Students who receive credit for this course may not receive credit for Political Science 7 or 15.

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

- 132w Public Administration: Personnel Administration (3 cred.; jr., sr., grad.; prereq. 131 or consent of instructor)
- 133s Public Administration: Financial Administration (3 cred.; jr., sr., grad.; prereq. 131 or consent of instructor)
- 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*))
- 137w 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.)
- 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.)
- 143s Government of the U.S.S.R. and Adjacent States (3 cred.; jr., sr., grad.; prereq. 6 cred.)
- 149 *Government and Politics of the British Empire*—India and the Tropical Colonies (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) (*Not offered*)
- 150 *Government and Politics of the British Empire*—Development of Dominion Status (3 cred.; jr., sr., grad.; prereq. 6 cred. or consent of instructor) (*Not offered*)
- 151 *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) (*Not offered*)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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)
- 167-168-169 *Readings in the Classics of Politics* (9 cred.; jr., sr., grad.; prereq. 15, or 164-165 (with which it may be taken simultaneously, or consent of instructor) (*Not offered*))
- 171s Political Psychology (The same as Psychology 141) (3 cred.; jr., sr., grad.; prereq. Psy. 140)
- 175-176-177† *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) (*Not offered*)
- 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)
- 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)
- 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)
- 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)

† 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.

- 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)
- 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)
- 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)
- 195f 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)
- 196w 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)

Courses Primarily for Graduate Students

The following courses may be taken by seniors majoring in political science with consent of the instructor:

- 201-202-203 *Seminar in American Government, Politics and Administration* (9 cred.; grad.; prereq. 12 cred. in pol. sci. or consent of instructor) (*Not offered*, but see 236-237 and 214, below)
- 204w-205s† *Seminar in Public Law* (6 cred.; grad.; prereq. 18 cred. in pol. sci. or consent of instructor)
- 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)
- 214w *Seminar in Political Parties* (3 cred.; grad.; prereq. 12 cred. or consent of instructor)
- 216f-217w-218s *Seminar in Theory and Practice of European Government* (9 cred.; grad.; prereq. 12 cred. or consent of instructor)
- 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)
- 229f *Scope and Methods of Political Science* (3 cred.; grad.; prereq. 12 cred. or consent of instructor)
- 236f-237s *Seminar in Federalism and Intergovernmental Relations* (6 cred.; grad.; prereq. 12 cred. or consent of instructor)
- 238f-239w-240s *Topics in International Law and Diplomacy*. 238: Legal problems in the organization of the United Nations; 239: The interpretation of treaties and international conventions; 240: Theoretical basis of international law (3 cred. per qtr.; sr. with consent of instructor, grad.; prereq. 175-176-177 or 180-181, or consent of instructor)
- 242f-243w-244s *Topics in Colonization and Imperialism* (9 cred.; grad.; prereq. 195-196 or consent of instructor)
- 245f-246w-247s *Seminar in Far Eastern Government and Politics* (9 cred.; grad.; prereq. 191-192-193 or equiv.)
- 248-249-250 *Seminar in International Organization* (9 cred.; grad.; prereq. 12 cred. or consent of instructor) (*Not offered*)

PSYCHOLOGY

Major advisers in the College of Science, Literature, and the Arts—Professors Bird, Elliott, Longstaff, Paterson, and Tinker, and Assistant Professor Clark.

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 sequence 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.

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

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. Mr. Elliott.

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.

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.)
1f,w-2w,s†§	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.)
1s-2s†§	General Psychology (6 cred.; soph., jr., sr.; no prereq.)
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)
4f,w†-5w,s†‡	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)
4s,5s	Introductory Laboratory Psychology (4 cred.; soph., jr., sr.; prereq. may be taken with or after Psy. 1, 2 or Psy. 2)
4s†-5s†‡	Introductory Laboratory Psychology (See 4f-5w)

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 prerequisite courses.

* 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.

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

§ 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.

¶ 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.

- 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)
- 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)
- 56f,w 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)
- 65f Advanced General Psychology. An advanced treatment, with demonstrations, of motivation, emotion, perception, thinking, and learning, developing the relations of psychology to other fields such as the medical and social sciences (3 cred.; jr., sr.; prereq. 1-2)
- 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)
- 86s Biographical Psychology. Human personalities in relation to their ancestries, their bodies, and their environments, physical and social (3 cred.; jr., sr.; prereq. 6 cred. in psy.)
- 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)
- 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)
- 108f Systems of Psychology. A reading course on the chief systems or schools of theoretical psychology. A term paper is required (3 cred.; jr., sr., grad.; prereq. 1-2 and consent of instructor)
- 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)
- 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)
- 125s,126s Psychology of Individual Differences (6 cred. See 125f-126w)
- 127f,w,s Projects in the Psychology of Individual Differences (3 cred.; sr., grad.; primarily for majors in Sequence C; prereq. 125-126)
- 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.)
- 130f,w,s‡ 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.)
- 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)
- 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)
- 141s 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. (The same as Political Science 171) (3 cred.; jr., sr., grad.; prereq. same as for 140)

† 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.

- 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.)
- 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)
- 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)
- 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)
- 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)
- 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)
- 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 141)
- 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)
- 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)

For Graduate Students Only

- 200-201-202 History of Psychology I
 203-204-205 History of Psychology II
 210-211-212 Research Problems
 215-216-217 Basic Seminar in Psychology
 220 Personality, Its Structure and Dynamics
 225 Seminar in Contemporary Research
 230-231-232 Field Work in Psychometrics and Applied Psychology
 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 Clinical Psychology
 270-271-272 Seminar in Recent Literature of Psychology
 281-282-283 Clinical Practice in the Student Counseling Bureau
 286 Advanced Biographical Psychology
 288 Seminar in Personality Dynamics
 291 Practicum in Use and Interpretation of Projective Techniques
 295-296-297 Seminar in Individual Differences and Applied Psychology

PUBLIC HEALTH

MEDICAL SCHOOL

Advisers in the College of Science, Literature, and the Arts—Professor Anderson; Associate Professor Grout, and Assistant Professor Thomson; and Associate Professor Treloar for Biostatistics.

Major advisers in the College of Education—Professor Anderson; Associate Professor Grout.

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

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 and 57, 59, 102, Bact. 53, and Physiology 2, 4, or 51.

Major sequence in Public Health Nursing—P.H. 53 or 100, 62, 63, 65, 66, 67, 133 and Ed. 81; additional P.H. courses, 5 credits.

Additional requirements—Social science (other than sociology), 9 credits; Freshman English or exemption from the requirement; Bact. 53 or 101; Psy. 1-2; Soc. 1, 49, 50, 91, or 129, and 3 additional credits in Child Welfare; natural science courses, 14 credits.

Note—The sequence leads to a B.S. degree with a major in public health nursing, the nine-month certificate course having been discontinued except for students already holding a B.A. or B.S. degree.

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)
- 4w,s§ Health Problems of the Community. Personal health and prevention of disease in the family; relation to community health and disease control, important diseases and their prevention (2 cred.; prereq. 3)

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 25.

- 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.)
- 51f,s§ 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)
- 52af,s§ Health Care of the Family. Factors affecting the health of the family as a unit; environmental factors, including elementary sanitation; prevention of accidents; communicable diseases; prenatal and infant hygiene and care; preschool and school hygiene; care of the sick room; observation and care of the patient; elementary symptomatology (2 cred.; soph., jr., sr.; prereq. Bact. 53, Physiol. 4; not open to students who have taken Course 50 or 51)
- 52bf,w,s§ Health Care of the Family—Laboratory (1 cred.; soph., jr., sr.; prereq. Bact. 53; Physiol. 4; not open to students who have taken Course 50 or 51) (Sections limited to 20)
- 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. 90 or 109 may be substituted by presocial work students. Course 55 may be taken concurrently with any of these prerequisites)
- 57w§ 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)

§ No credit is granted for this course in the major sequence in Public Health Nursing.

- 59f,w,s Health of the School Child. Mental and physical growth; communicable diseases; 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; will be waived for teachers and school nurses, but credit granted only after completion of prereq.)
- 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)
- 62f,w** Principles of Public Health Nursing I. Trends, principles, and techniques in public health nursing service including family health guidance. (Primarily for nurses; others admitted by special permission) (3 cred.; jr., sr.; prereq. 53 or 100 or equivalent, but may be taken concurrently)
- 63w,s** Principles of Public Health Nursing II. Organization of public health nursing services; program planning; evaluation; professional problems in public health nursing. (Primarily for nurses; others admitted by special permission) (3 cred.; jr., sr.; prereq. 53 or 100 or equivalent, but may be taken concurrently)
- 80w‡‡ Elementary Vital Statistics. Sources of data on population, mortality, morbidity, and natality. Calculation of rates and graphical comparison of time and age trends (3 cred.; public health nurses and by special permission of instructor)
- 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)
- 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)
- 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)
- 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)
- 104f Epidemiology I. Factors underlying the spread of infectious diseases, with detailed discussion of selected diseases; simple statistical and epidemiologic methods in the study of diseases. Lectures and laboratory (3 cred.; jr., sr., grad.; physicians, others by permission; prereq. 53 or 100 and consent of instructor. 140 must be taken in conjunction with this course unless student has already had 110, 140, or equiv.)
- 105w Epidemiology II. Continuation of 104 (3 cred.; sr., grad.; prereq. 104)
- 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)
- 107f Child and Adult Hygiene. Promotion of hygiene through public health and community effort, maternal, infant, preschool, school, college, industrial, and adult. Lectures and field trips (3 cred.; physicians; graduate students in public health nursing and medical social work)
- 122s Public Health Administration Problems. Conference discussion of selected problems; budgeting and program planning; appraisal of public health procedures and activities (3 cred.; prereq. 106)
- 135s Conservation of Hearing. Detection, prevention, and amelioration of hearing impairments as related to public health education, school, industrial, and public health nursing, and medical social service (1 cred.; prereq. 53 or 100 and 62 or to be taken concurrently)

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

** To receive credit for this course the student must complete both Courses 62 and 63.

- 136a Sight Conservation. Conditions that impair human vision; community programs of vision; testing and correction of defects; sight conservation programs (1 cred.; prereq. 53 or 100 and 62 or to be taken concurrently)
- 137s Dental Health. Conditions resulting in tooth decay and loss; preventive and corrective measures; mouth hygiene; community programs for dental health (1 cred.; prereq. 53 or 100 and 62 or to be taken concurrently)
- 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.; permission of instructor)
- 200f,w,s Research. Opportunities will be offered by the school and by the various coordinated organizations for qualified students to pursue research work (Cred. ar.; prereq. permission of instructor)
- 210f,w,s Seminar in Public Health (Ar.; Staff)

For other courses in public health see the *Bulletin of the Graduate School*, or the *Bulletin of the School of Public Health*.

BIOSTATISTICS

- 110f,s 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)
- 111f,s† Biostatistics Laboratory. Practical training in machine calculation and statistical techniques discussed in 110, with which it is to be taken concurrently (2 cred.)
- 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)
- 121s† Correlation Laboratory. Practical training in the techniques of 120, with which it is to be taken concurrently (2 cred.)
- 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)
- 131w† Sampling Laboratory. Study of the distributions of statistics derived from small samples by practical test (2 cred.; to be taken with 130)
- 140f† Vital Statistics. Study of official sources of vital statistics, including population changes, calculation of rates, and graphical exposition of trends (3 cred.; sr., grad.; prereq. permission of instructor; to be taken in conjunction with 104)
- 150w† Life Tables. Mortality rates and the construction of the life table. Laboratory course with discussions, offered when sufficient demand exists (3 cred.; prereq. permission of instructor)
- 201f,w,s Topics in Biometry. Studies in special topics for advanced students (Cred. ar.; prereq. 120, 130, or consent of instructor)
- 211f,w,s Seminar in Biometry (1 cred.)

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.

ROMANCE LANGUAGES

Major advisers in the College of Science, Literature, and the Arts—Professor Pattison; Associate Professors Grismer and Clefton; Instructor Mrs. Olson.

Major sequence 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.

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

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 Area Studies, page 28.

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 Clefton; Spanish: Professor Pattison.

Requirements for a teacher's certificate—Major recommendation 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,w,s-2f,w,s	Beginning French (10 cred.; no prereq.)
1af-2aw§	Beginning French—Conversational Section (10 cred.; no prereq.)
3f,w,s-4f,w,s	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)
3as§	Intermediate French—Conversational Section (5 cred.; prereq. 1af-2aw)
20f,w,s	Oral and Written French (5 cred.; prereq. 4, or four½ years of high school French)

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 25.

§ 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 or, during registration week in the fall, in Room 103 Folwell Hall.

¶ Students who have had three years of high school French may be admitted to Course 20 with the consent of the department.

- 50f,w French Pronunciation (3 cred.; jr., sr.; prereq. 3-4)
- 52s French Pronunciation and Diction (Open only to candidates for the French play) (1 or 2 cred.; jr., sr.; prereq. 3-4)
- 53f French Composition (3 cred.; jr., sr.; prereq. 3-4)
- 54w-55s French Conversation (6 cred.; jr., sr.; prereq. 53 or 20)
- 63f-64w Advanced French Composition (6 cred.; jr., sr.; prereq. 53 or 20 with a grade of B)
- 65s Advanced French Conversation (3 cred.; jr., sr.; prereq. 54-55 or 20 with a grade of B)
- 70f-71w-72s** Survey of French Literature (9 cred.; jr., sr.; prereq. 3-4)
- 73w-74s** Survey of French Literature (10 cred.; jr., sr.; prereq. 3-4)
- 75f-76w-77s French Civilization and Culture (9 cred.; jr., sr.; prereq. 3-4)
- 103f-104w-105s French Syntax and Composition (3 cred.; jr., sr., grad.; prereq. 63 or registration in 63)
- 107s Cours de Style (3 cred.; jr., sr., grad.; prereq. 63-64 or permission of instructor)
- 110f French Literature: 19th Century—Chateaubriand and Romantic Prose (3 cred.; jr., sr., grad.; prereq.*)
- 111 *French Literature: 19th Century—Drama* (3 cred.; jr., sr., grad.; prereq.*) (*Not offered*)
- 112s French Literature; 19th Century—Poetry (3 cred.; jr., sr., grad.; prereq.*)
- 115-116-117** *French Literature: 17th Century* (9 cred.; jr., sr., grad.; prereq.*) (*Not offered*)
- 118f-119w-120s** French Literature: 18th Century (9 cred.; jr., sr., grad.; prereq.*)
- 121f-122w-123s French Literature: 16th Century (9 cred.; jr., sr., grad.; prereq. 9 cred. in literature courses above 74 or permission of instructor)
- 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.*)
- 146w Contemporary French Dramatic Literature (3 cred.; jr., sr., grad.; prereq.*)
- 156 *French Realistic Novel* (3 cred.; jr., sr., grad.; prereq.*) (*Not offered*)
- 157s Modern French Novel: France, Loti, Bourget (3 cred.; jr., sr., grad.; prereq.*)
- 158 *Contemporary French Novel I. Course conducted in French* (3 cred.; jr., sr., grad.; prereq.*) (*Not offered*)
- 159 *Contemporary French Novel II. A continuation of French 158* (3 cred.; jr., sr., grad.; prereq.*) (*Not offered*)
- 171f-172w-173s† History of French Language (3 cred.; jr., sr., grad.; prereq. one year of Latin or permission of instructor)

For Graduate Students Only

- 201f-202w-203s Old French Phonology and Morphology (6 cred.)
- 204f-205w-206s Reading in Old French Literature (6 cred.)
- 225f-226w-227s French Seminar: André Gide and the Contemporary Novel (6 cred.)

ITALIAN

Junior College Courses

- 1f-2w‡ Beginning Italian (8 cred.; no prereq.)
- 3s Intermediate Italian (4 cred.; prereq. 2 with grade of C)
- 4f Intermediate Italian (4 cred.; prereq. 3)
- 5w‡ Reading Knowledge of Italian (5 cred.; prereq. knowledge of French, Latin, or Spanish. No previous knowledge of Italian is necessary)

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 25.

- 69 *Survey of Italian Literature I* (3 cred.; jr., sr.; prereq.§) (*Not offered*)
- 70 *Survey of Italian Literature II* (3 cred.; jr., sr.; prereq.§) (*Not offered*)
- 71w Modern Poetry (Leopardi, Carducci) (3 cred.; jr., sr.; prereq.§)

* Prerequisite is 70-71-72 or 73-74.

† 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.

72f	Modern Drama (Giacosa, Bracco, Pirandello) (3 cred.; jr., sr.; prereq.§)
73	<i>Boccaccio</i> (3 cred.; jr., sr.; prereq.§) (<i>Not offered</i>)
74s	Petrarch (3 cred.; jr., sr.; prereq.§)
159-160**	<i>Dante</i> (6 cred.; jr., sr., grad.; prereq. one course above 50) (<i>Not offered</i>)
161f-162s	The Sixteenth Century (6 cred.; jr., sr., grad.; prereq. one course above 50)
164s	Dante in English (3 cred.; jr., sr., grad.; prereq. consent of instructor). No previous knowledge of Italian is necessary

PORTUGUESE

1f-2w	Beginning Portuguese (10 cred.; no prereq.)
3s	Intermediate Portuguese (5 cred.; prereq. 1-2)

SPANISH

Junior College Courses

1f,w,s-2f,w,s	Beginning Spanish (10 cred.; no prereq.)
1af-2aw§§	Beginning Spanish—Conversational Section (10 cred.; no prereq.)
3f,w,s-4f,w,s	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)
3as§§	Intermediate Spanish—Conversational Section (5 cred.; prereq. 1af-2aw)
20f,w,s	Oral and Written Spanish (5 cred.; prereq. 4 or four½ years of high school Spanish)

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 25.

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)
53f	Spanish Composition (3 cred.; jr., sr.; prereq. 3-4)
54w-55s	Spanish Conversation (6 cred.; jr., sr.; prereq. 53 or 20)
56s	Spanish Phonetics and Diction (5 cred.; jr., sr.; prereq. 20 or 53)
57w,s	Commercial Spanish (5 cred.; jr., sr.; prereq. 20 or 53)
60f	Advanced Spanish Composition (3 cred.; jr., sr.; prereq. 53 or 20 with grade of B)
61w-62s	Advanced Spanish Conversation (6 cred.; jr., sr.; prereq. 54-55 or 20 with grade of B)
65f-66w-67s	Survey of the Literature of Spain (9 cred.; jr., sr.; prereq. 3-4)
68w-69s	Survey of the Literature of Spain (10 cred.; jr., sr.; prereq. 3-4)
70f-71w-72s	Latin-American Civilization and Culture (9 cred.; jr., sr.; prereq. 5 credits above 4 or permission of instructor)
74f-75w-76s	Survey of the Literature of Latin America (9 cred.; jr., sr.; prereq. 3-4)
103f-104w-105s	Spanish Syntax and Composition (3 cred.; jr., sr., grad.; prereq. 60 or registration in 60)
110-111-112	<i>Spanish Literature: 19th Century</i> (9 cred.; jr., sr., grad.; prereq.*) (<i>Not offered—Will be offered in 1948-49</i>)
115f-116w-117s	<i>Spanish Literature: 17th Century</i> (9 cred.; jr., sr., grad.; prereq.*)
120	<i>The Ballad</i> (3 cred.; jr., sr., grad.; prereq.*) (<i>Not offered</i>)
130	<i>Cervantes: Don Quijote</i> (3 cred.; jr., sr., grad.; prereq.*) (<i>Not offered</i>)
131	<i>The Picaresque Novel</i> (3 cred.; jr., sr., grad.; prereq.*) (<i>Not offered</i>)
140f-141w-142s	Contemporary Latin-American Literature (9 cred.; jr., sr., grad.; prereq. a survey of the literature of Spain or Latin America)
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)

* The prerequisite is 65-66-67 or 68-69.

§ 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.

¶ Students who have had three years of high school Spanish may be admitted to Course 20 with the consent of the department.

** Students may enter any quarter with permission of instructor.

§§ 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 or, during registration week in the fall, in Room 103 Folwell Hall.

- 155-156-157 *Spanish Literature: 16th Century* (9 cred.; jr., sr., grad.; prereq.*) (*Not offered—Will be offered in 1948-49*)
 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*)
 174f-175w-176s *Contemporary Spanish Literature* (9 cred.; jr., sr., grad.; prereq.*)

For Graduate Students Only

- 241-242-243 *Old Spanish Philology* (6 cred.) (*Not offered*)
 244f-245w-246s *Readings in Old Spanish Literature* (6 cred.)
 250f-251w-252s *Spanish Seminar* (6 cred.)
 253f-254w-255s *Seminar in Latin-American Literature—Rubén Darío* (6 cred.)

RUSSIAN

Junior College Courses

- 1f-2w *Beginning Russian* (10 cred.; no prereq.)
 3s *Intermediate Russian* (5 cred.; prereq. 1-2)

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)
 55s *Russian Pronunciation* (2 cred.; jr., sr.; prereq. 3)
 61f-62w-63s *Russian Composition* (6 cred.; jr., sr.; prereq. 3)
 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)
 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)
 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.)
 3s *Intermediate Norwegian* (5 cred.; prereq. 1-2 or equiv.)
 4f-5w-6s *Advanced Norwegian* (9 cred.; prereq. 1-2-3 or equiv.)
 7f-8w *Beginning Swedish* (10 cred.; no prereq.)
 9s *Intermediate Swedish* (5 cred.; prereq. 7-8 or equiv.)
 10f-11w-12s *Advanced Swedish* (9 cred.; prereq. 7-8-9 or equiv.)
 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.)

* The prerequisite is 65-66-67 or 68-69.

¶ No knowledge of the Russian language is required.

§ No knowledge of Scandinavian languages is required.

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 25.

- 51§ *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) (*Not offered—Offered in 1948-49*)
- 52§ *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) (*Not offered—Offered in 1948-49*)
- 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.)
- 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.)
- 113-114 *Gothic* (6 cred.; sr. with completed major sequence, grad.) (The same as German 113-114)
 113 *Gothic.* Introduction to Germanic Linguistics (4 cred.) (*Not offered*)
 114 *Gothic Texts* (2 cred.) (*Not offered*)
- 153s The Modern Scandinavian Home as an Expression of Northern Art (The same as Art Ed. 153) (3 cred.; jr., sr., grad.)
- 161w§ 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)
- 162s§ 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)
- 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)
- 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)
- 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)
- 176f-177w Problems and Research Trends in Germanic Philology. (The same as German 176-177) (6 cred.; sr., grad.; prereq. at least two Germanic dialects)
 176f The Germanic Languages (3 cred.)
 177w The Germanic Literary Tradition. A comparative discussion of the native and foreign records of the Old Germanic period (3 cred.)
- 183s§ Germanic Heroic Poetry. (The same as German 183) (3 cred.; sr., grad.; prereq. 8 cred. in literature)
- 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)
- 195 *Introduction to Old Norse Language and Literature.* Old Norse phonology and morphology. Survey of Old Icelandic history and literature. (The same as German 195) (4 cred.; sr., grad.; prereq. 113) (*Not offered*)

For Graduate Students Only

- 215f-216w-217s Studies in Scandinavian Romanticism
 218-219-220 *Studies in Late Nineteenth-Century Scandinavian Literature (Not offered—Offered in 1948-49)*
 221f-222w-223s Biographical Problems in Strindberg
 230-231-232 *Seminar: Germanic Languages and Literature* (9 cred.; prereq. at least two Germanic dialects)
 Texts in Germanic Dialects. Runic Inscriptions. (The same as German 218-219-220) (Not offered)

SECRETARIAL TRAINING

See Economics, page 50.

SOCIAL SCIENCE

See General Studies, page 63.

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, Shea; Assistant Professors Guilford, Marshall, and Scott; Instructor Nagel.

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

Group I—General Sociology Sequences—

Sequence A. Sociological principles. Courses 100, 101, 103, 120, 140, 145 and 10 additional credits elected from other courses numbered 100 and above.

Sequence B. Sociological Orientation to the Modern World. Courses 50, 53, 100, 101, 119, 120 and 10 additional credits elected from other courses numbered 100 and above.

Group II—Sequences with Vocational Emphasis—

Sequence C. Criminology and Penology. Courses as follows: 50, 53, 102, 105, 106 or 107, 132 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, 101, 114; 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. 145; 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.)

Students who are taking this Major Sequence D may elect, and get credit for, a maximum of 18 credits in the following courses in Art Education and Physical Education. This privilege is primarily for students preparing for graduate training in group work directed to leadership in recreation.

Art Education

- 31,32,33,
 34 Orientation in Handcraft Processes
 73A,B,C Ceramic Materials and Processes
 74 Bookbinding Processes
 75 Metal Work
 76 Textile Materials and Processes
 81A-B Techniques of Puppetry

Physical Education for Men

- 56 Nature and Function of Play
- 136E Leadership in Community Recreation
- 141E Administration and Supervision of Public Recreation
- 142E Group Leadership and Community Organization for Recreation

Physical Education for Women

- 54 Camp Leadership
- 60 Principles of Play
- 63 Technique of Teaching Folk Dancing
- 80 Principles of Rhythm

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, 101, 104; one from 110, 114, 119; 160, 161, and 5 additional credits elected from other courses numbered 100 or above.

Sequence F. Social Research. Courses 112, 122 or equivalent, 123, 141, 162-163-164, 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.)
- 1f,w,s Introduction to Sociology. (For students of the College of Agriculture, Forestry, and Home Economics only) (3 cred.; no prereq.)
- 2f,w,s Individual and Minority Group Adjustment. 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)

- 14w,s Rural Sociology. A presentation of factual data necessary to an understanding of the problems of rural social life (3 cred.; prereq. 1)
- 14f,w Rural Sociology. (For students of the College of Agriculture, Forestry, and Home Economics) (3 cred.; prereq. 1)
- 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)
- 48f,s Social Control and Criminal Behavior. A study of the basis of orderliness and law-abiding behavior and its disintegration into criminal behavior (3 cred.; prereq. 1)
- 49f,w,s Social Problems. A survey course in contemporary social problems with especial emphasis on personal demoralization and social disorganization (3 cred.; prereq. 1)

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 25.

- 50f,w-51w,s 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 (5 cred. each qtr. for Sequence D students; 4 cred. other students; jr., sr.; prereq. 49)
- 53f,w,s Elements of Criminology. A general survey of the field of criminology (3 cred.; jr., sr.; prereq. same as for 49)
- 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,s 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)
- 95f 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)
- 97f-98w-99s Tutorial and Honors Work in Selected Fields (9 cred.; jr., sr.; prereq. consent of major adviser in sociology)
- 100f,w Social Psychology (3 cred.; jr., sr., grad.; prereq. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 101s 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 102s 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 103w 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 104f 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.)
- 105f 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 106 *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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) (*Not offered*)

- 107w Adult Parole and Probation. A critical examination of problems and practices in the supervision of adult criminals (3 cred.; jr., sr., grad.; prereq. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 110f 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 112s 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 113s 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)
- 114w 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 115 *Religion As a Social Institution* (3 cred.; jr., sr., grad.; prereq. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) (*Not offered*)
- 116 *The Newspaper As a Social Institution* (3 cred.; jr., sr., grad.; prereq. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor) (*Not offered*)
- 118w,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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 119f,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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 120f 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 122f Statistical Methods. Selected problems of social relationship described, analyzed, and interpreted by means of the common statistical methods (3 cred.; grad.*; prereq. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 123f 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. Soc. 45 or equiv.)
- 132s 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)
- 140w 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 141w 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 122 or equiv.)

* For graduate students only except by petition.

- 145s 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 146¶ *Community Organization and the Social Setting of Recreation* (3 cred.; jr., sr., grad.; prereq. for Arts College students, 3 courses in soc.; for students in Education, 3 courses in soc. sci. including Soc. 57) (*Not offered*)
- 147¶ *Group Leadership and Organization* (3 cred.; jr., sr., grad.; prereq. Soc 146 or equiv.) (*Not offered*)
- 148¶ *Supervisory Problems in Recreation* (Open only to majors or minors in recreation curriculum) (3 cred.; jr., sr., grad.; prereq. Soc. 147 or equiv.) (*Not offered*)
- 160w Population Trends and Policies. 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 161w 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. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 162f-163w-164s 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 some supervision (6 cred.; jr., sr., grad.; prereq. 45 or 122 which may be taken simultaneously)

For Graduate Students Only

COURSES IN SOCIOLOGY

- 200f,w,s Seminar: Research Problems in Criminology
- 201 Seminar: *Social Psychology of Family Relationships* (*Not offered—Offered in 1948-49*)
- 202 Seminar: *Topics in Urban Sociology* (*Not offered—Offered in 1948-49*)
- 203f-204w-205s Seminar in Social Theory
- 206f-207w-208s Seminar: Statistical Theory in Relation to Social Theory and Practice
- 209-210-211 Seminar: *The Theory of Social Evolution* (*Not offered*)
- 215f Seminar in Rural Sociology: Rural Life in Latin America
- 216w Seminar in Rural Sociology: Rural Life in Selected Countries of Europe
- 217s Seminar in Rural Sociology: Current Rural Social Problems in the United States
- 234f,w,s Seminar in Juvenile Delinquency and Treatment
- 238f-239w† Principles of Sociology (6 cred.)

COURSES IN SOCIAL WORK

A. General Social Work Courses

- 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.)
- 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.)
- 205f,206w,207s Special Topics in Social Work (Cred. ar.)
- 209f,w,s Seminar in Social Agencies and Institutions (Cred. ar.)

B. Field Work Courses

- 210f,s†-211w‡-
212f,s‡ Initial Field Training in Social Work. Field practice in social work process under direct supervision (Cred. ar.; prereq. 220 which may be taken simultaneously, or equiv.)

† 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.

¶ Open only to majors in sociology and social work or recreation.

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)
- 219f,w,s Seminar for Field Training Supervisors (Cred. ar.; limited to persons engaged in supervising students in field work)

C. Case Work

- 220f,s 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 may be taken simultaneously, or equiv.)
- 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 plus 211 and 236 both of which may be taken simultaneously, or equiv.)
- 222w Advanced Family Case Work. Case discussion focused primarily on treatment processes (3 cred.; prereq. 221 or equiv.)
- 224f,w,s Seminar in Case Work in the Public Agency (Cred. ar.; prereq. 221 or consent of instructor)
- 225w,s Seminar in Family Case Work (Cred. ar.; prereq. 221 or consent of instructor)
- 226f,w Seminar in Case Work in Health Problems (Cred. ar.; prereq. 221 or consent of instructor)
- 227f,w,s Seminar in Case Work in the Psychiatric Setting (Cred. ar.; prereq. 221 and 215-216-217 which must be taken simultaneously)
- 228f Seminar in Social Case Recording (Cred. ar.)
- 229f,s Seminar in Case Work Supervision (Cred. ar.; prereq. 222 or 230 or 251 or 261)

D. Psychiatric and Psychological Courses

- 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.)
- 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.)
- 236w 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)
- 237w Descriptive Neuropsychiatry. (The same as Neuropsychiatry 171). 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. 235 or equiv.)
- 238s Advanced Considerations in Psychiatry. (The same as Neuropsychiatry 172). 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. 237 or equiv.)
- 239s Seminar in Psychiatric Social Work (2 cred.; prereq. 230, 235, and 236)
- 240 *Dynamics of Human Behavior Based on Psychoanalytic Theory* (3 cred.; prereq. 235) (Not offered)
- 242w Human Behavior. (The same as Psychology 114) (3 cred.; prereq. Psy. 1-2; 4-5 or Zool. 1-2-3, or Phil. 1)
- 243w Behavior Problems. (The same as Child Welfare 140) (2 cred.; prereq. 12 cred. in psy., ed. psy., or soc.)
- 244w Behavior Problems (The same as Child Welfare 141) (2 cred.; prereq. 12 cred. in psy., ed. psy., or soc.)
- 245f Principles of Mental Measurements. (The same as Child Welfare 190) (2 cred.; prereq. 12 cred. in psy., ed. psy., or soc.)
- 246Aw-246Bs Introduction to Clinical Psychology. (The same as Psychology 171-172) (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.)

E. Medical Courses

- 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.)

† A fee of \$3.50 per quarter is charged for this course.

- 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.)
- 254w Public Health Administration. (The same as P.H. 106) (3 cred.; prereq. P.H. 53 or equiv.)
- 255s Social and Economic Aspects of Medical Care. (The same as P.H. 141) (3 cred.; prereq. P.H. 106)
- 256w Care of the Handicapped Child. (The same as P.H. 108) (2 cred.; prereq. P.H. 53, P.H. 57, P.H. 58, or P.H. 100, or permission of instructor)
- 259f,w,s Seminar in Medical Social Work (Cred. ar.; prereq. 221 and 251-252-253 which may be taken simultaneously)

F. Child Welfare Courses

- 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.)
- 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)
- 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)
- 263s Juvenile Courts and Probation. (The same as Sociology 132) (3 cred.; prereq. Soc. 53 or consent of instructor)
- 265f,w,s Seminar in Juvenile Delinquency and Treatment. (The same as Sociology 234) (Cred. ar.)
- 266w,s Seminar in Child Welfare (Cred. ar.)

G. Public Welfare Courses

- 267f,s Public Welfare I. Historical development and existing functions of present-day public welfare services (3 cred.; prereq. 200 or equiv.)
- 268w Public Welfare II. Continuation of Public Welfare I (3 cred.; prereq. 267)
- 269f,w,s Seminar in Public Welfare Administration (Cred. ar.; prereq. 268)
- 270Aw-270Bs Recent Social Legislation. (The same as Political Science 124-125) (6 cred.; prereq. 6 cred. in political science or consent of instructor)

H. Social Administration and Community Organization

- 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.)
- 276w 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.)
- 277s Public Relations in Community Service. (The same as Journalism 150) (2 cred.; prereq. consent of major adviser and director of School of Journalism)
- 278w Social Aspects of Housing and Standards of Living. (The same as Sociology 161) (3 cred.; prereq. Sociology 1 and 15 credits in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 279s Seminar in Administration and Community Organization (Cred. ar.; prereq. 275 and 280)
- 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)
- 281f Rural Community Organization. (The same as Sociology 110) (3 cred.; prereq. consent of instructor)

I. Group Work Courses

- 282f,s Principles of Group Work. An analysis of the group process including the study of group behavior, the use of the group in individual development and social usefulness, and leadership techniques in working toward those ends (3 cred.; prereq. 200 or equiv.)

- 283s Supervision in Group Work. A study of the methods of supervision of groups and group leaders with special emphasis on the use of the individual and group conferences, group records, and observation as supervisory tools, and an analysis of the administrative functions of the group work supervisor (3 cred.; prereq. 210 and 282)
- 289f,w,s Seminar in Group Work (Cred. ar.)

J. Research Courses

- 290f Statistical Methods. (The same as Sociology 122) (3 cred.; prereq. Sociology 1 and 15 cred. in social science, child welfare, education, philosophy, or psychology, or consent of instructor)
- 291f Methods of Social Research. (The same as Sociology 123) (3 cred.; prereq. Soc. 45 or 122 or equiv.)
- 292w Problems in Social Measurement. (The same as Sociology 141) (3 cred.; prereq. Soc. 45 or 122 or equiv.)
- 293f,w,s Special Studies in Social Work (Cred. ar.; fulfills 9 cred. requirement plan B)
- 299w,s Seminar in Recent Research in Social Work (Cred. ar.)
- 300f,w,s General Seminar in Social Work (Cred. ar.)

SPANISH

See Romance Languages, page 109.

SPEECH

Major advisers in the College of Science, Literature, and the Arts—Professors Rarig, Bryngelson, and Gilkinson; Associate Professor Whiting; Assistant Professor Howell.

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

A. General: Courses 55-56-57, 61, 67; 101-102-103; 106 or 109 and 9 additional Senior College credits in one of the following: Economics, English, Philosophy, History, Political Science.

B. Theater: Courses 61; 81-82-83; 91, 92, 93; 111-112-113 and a comprehensive examination in the theater.

C. Speech Pathology: Courses 61; 67; 152-153, 155; 162-163; 141-142-143; 164-165-166.

D. Radio: Courses 65, 66, 67; 78-79; 81-82-83, 117 and 6 to 9 additional credits in courses to be selected in conference with adviser.

(Prerequisites: 1-2-3 or 5-6; Psychology 1-2. For Sequence B, Speech 31, 32-33, 34 are required. For Sequence C, Psychology 4-5 and Physiology 2 are recommended.)

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 Rarig, 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, 101-102; 121; total 41 or 42 credits. Psychology 4-5 is advised.

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, Speech Pathology, 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, oratory, 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 Theater.

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 \$85 per quarter. Half-time out-patients pay \$45 per quarter.

Junior College Courses

- 1f,w,s-2f,w,s†
3f,w,s‡ Fundamentals of Speech. Development of basic skills in speech: voice and action, oral reading, discussion, extemporaneous speaking (9 cred.; fr.,* soph., jr., sr.; no prereq.)
- 5f,w,s-6f,w,s† Fundamentals of Speech. The same as 1-2-3 (10 cred.; fr.,* soph., jr., sr.; no prereq.)
- 31f,s‡† 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)
- 32f,w-33w,s‡† 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)
- 34f‡†** Stagecraft—Construction and Painting. Theory and practice in construction, painting, and shifting of stage scenery (3 cred.; soph., jr., sr.; prereq. 31)

Senior College Courses

Courses 51, 67, 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 25.

- 51s‡ Advanced Public Speaking. Preparation and delivery of speeches on current public issues (3 cred.; jr., sr.; prereq. 1-2-3 or 5-6)
- 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)
- 61f,s‡ Personality 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)

* 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.

** Students taking Course 71-72-73 may not receive credit for Courses 34, 91-92-93, 111-112-113.

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

- 65f,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)
- 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)
- 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)
- 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)
- 78w-79s‡‡ Advanced Acting—Characterization styles of acting, dialect, and stage technique. Presentation of scenes from great plays (6 cred.; jr., sr.; prereq. 31, 32-33)
- 81f,w-82w,s-83f,s‡ 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)
- 91w‡‡** Stage Design. Theory and practice of designing scenery as a functional environment for the stage play (3 cred.; jr., sr.; prereq. 31)
- 92s‡‡** Stage Lighting. Theory and practice in applying methods and principles of lighting in the theater (3 cred.; jr., sr.; prereq. 31)
- 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.)
- 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.)
- 105s* 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)
- 106f,w,s Public Speaking and 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, and permission of instructor)
- 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)
- 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 Theater (1 to 3 cred. per qtr.; sr., grad.; prereq. 31, 32-33 and permission of instructor)
- 117s Writing Radio Drama. The course is designed specifically for students interested in writing radio drama, including documentary plays, adaptations, original scripts, popular drama, radio serials and children's programs (1 to 3 cred.; sr., grad.; prereq. 31, 32-33 and permission of instructor)
- 121s Advanced Speech Problems. Examination of theories and investigations in relation to the teaching of speech (3 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, Psy. 1-2)
- 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)

* Courses 105 and 109 are offered in alternate years.

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

‡‡ 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.

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

- 131s†† Community Dramatics (Children's Theater). The cultural values of community and children's theaters. Dramatic educational and critical literature of the field. Specimen projects, reports, term papers (3 cred.; sr., grad.; prereq. 91-92-93 and 111-112-113, or permission of instructor)
- 141f-142w-143s Voice Science. Anatomy and physiology of the voice mechanism, science of speech sounds, experimental approach to wartime communications, practical application (9 cred.; jr., sr., grad.; prereq. 1-2-3 or 5-6, 67; Psy. 1-2 and 4-5)
- 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)
- 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)
- 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)
- 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)
- 171-172-173§ History of the Theater. A study and an analysis of the arts and crafts of the theater in the nineteenth and twentieth centuries. Special reports and projects (9 cred.; sr., grad.; prereq. 1-2-3 or 5-6; 31) (*Not offered*)
- 174f-175w-176s§ 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)
- 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)
- 184f-185w-186s The Interpretation of the Drama. Critical analysis of plays: modern, Renaissance, and ancient. (The same as English 184-185-186) (9 cred.; jr., sr., grad.; prereq. 6 cred. in English literature above A-B-C, Eng. 55-56 recommended)
- 191-192-193 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) (*Not offered*)

For Graduate Students Only

- 201f,w,s General Seminar
- 207f-208w-209s Seminar in Rhetoric and Persuasion
- 211f-212w-213s Seminar in Dramatic Theory
- 221f-222w-223s Seminar in Oral Interpretation of Literature
- 231f-232w-233s Seminar in Advanced Speech Problems
- 261f-262w-263s Seminar in Speech Pathology
- 291f-292w-293s Research in Special Problems

SWEDISH

See Scandinavian, page 113.

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 liberal arts major:

1. Philosophy 50-51-52. General History of Philosophy (15 credits).

§ 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.

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

2. Nine credits from these courses in philosophy:
 - 106-107. Plato (6 credits)
 114. American Philosophy from Puritanism to Pragmatism (3 credits)
 180. History of Religion (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)
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 115 (Religion As a Social Institution)
5. Fifteen 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 62.

Junior College Courses

1f-2w-3s†‡	General Zoology. Structure, physiology, embryology, classification, and evolution of animals (10 cred.; no prereq.)
14f-15w†‡	General Zoology. Structure, physiology, embryology, classification, and evolution of animals. (For students of the College of Agriculture, Forestry, and Home Economics and Pharmacy) (6 cred.; no prereq.)
21f‡§	Histology. Microscopic structure of the tissues and organs (5 cred.; soph., jr., sr.; prereq. 1-2-3)
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)
46w-47s†	Ornithology. A laboratory and field class in identifying and enjoying the birds of this region. Early meetings will make use of collections of the Museum of Natural History, but as weather permits the class will meet in field locations (6 cred.; soph., jr., sr.; prereq. 1-2-3 and permission of instructor)

† 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.

§ Not open to regular three-year premedical and pre dental students.

‡‡ A fee of \$7.00 is charged for this course.

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 25.

- 50s‡ Introduction to Comparative 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)
- 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)
- 52w‡ Introductory Entomology. General morphology, life histories, habits, and classification of insects (5 cred.; jr., sr.; prereq. 1-2-3)
- 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)
- 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)
- 81f‡ Invertebrate Zoology. A review of the invertebrate phyla with emphasis on structure and general classification (3 cred.; jr., sr.; prereq. 1-2-3)
- 82w Organic Evolution. History, opposition, evidence, causes, conclusion (3 cred.; jr., sr.; prereq. Zool. 1-2-3 or Bot. 1, 7, 21)
- 83f,s Introduction to Genetics and Eugenics. Facts and theories of heredity with special reference to man; chances of man to inherit traits; possible benefits of control by man for the betterment of himself and society (3 cred.; jr., sr.; prereq. 1-2-3 or 10 cred. in bot.)
- 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.)
- 109f‡-110w‡-111s‡ General Physiology of Animal Reactions. A survey of the structure and function of sense organs, nervous systems, effector organs and behavior patterns from the comparative viewpoint (9 cred.; jr., sr., grad.; prereq. 15 cred.)
- 112f‡-113w‡ Advanced Comparative Physiology. General and Comparative physiology of absorption, distribution, and secretion of solutes and fluids and the energetic mechanisms involved (3 cred.; jr., sr., grad.; prereq. 15 cred. with consent of instructor)
- 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.)
- 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.)
- 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.)
- 125f‡-126w‡-127s‡ Advanced Entomology. Morphology, biology, and classification of insects (9 cred.; jr., sr., grad.; prereq. 15 cred.)
- 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)

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

§ Not open to regular three-year premedical and pre dental students.

¶ Either 119s or 120s or both may be taken to complete Course 117f-118w.

- 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*)
- 133s‡ Genetics of Development. Contributions to theories on the function, time of action, and manner of action of genes, and on the nature of the gene (3 cred.; jr., sr., grad.; prereq. proper preparation in advanced genetics or consent of instructor)
- 144f‡ Medical Entomology. A study of the principal arthropods obnoxious to man and animals. Special emphasis is placed on these arthropods which serve as vectors of pathogenic organisms of man and animals (3 cred.; jr., sr., grad.; prereq. 15 credits)
- 145w‡-146s‡ Animal Parasites and Parasitism. Origin and biological significance of parasitism; the structure, life history, and economic relations of representative parasites. 145w: Parasitic protozoa; 146s: Helminthology (6 cred.; jr., sr., grad.; prereq. 15 cred.)
- 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.)
- 155w‡ Physiology in Relation to Physics (3 cred.; jr., sr., grad.; prereq. 15 cred. in biol. sci. and consent of instructor. Physics recommended)
- 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)
- 170f‡-171w‡ Advanced Genetics. General laws involved in heredity and variation, with deviations from the practical applications of the laws (6 cred.; jr., sr., grad.; prereq. 15 cred. including Course 83, or consent of instructor)
- 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.)
- 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.)
- 182w Experimental Embryology. Recent investigations in developmental mechanics (3 cred.; jr., sr., grad.; prereq. 15 cred. including Course 21 or equiv.)
- 197f-198w-199s Problems. Advanced work in some special line (5 or more cred.; jr., sr., grad.; prereq. 1-2-3, special requirements)

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 Assistant Dean Shumway, 219 Administration Building. See the program of the College of Agriculture, Forestry, and Home Economics, in another part of this bulletin.

‡ 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 consult 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 9-11 of this bulletin and also the departmental listing on Architecture in Section II.

The following courses should be completed during this period. Required for the major sequence:

Course No.	Title	Credits
Arch. 40	Graphic Representation	5
Arch. 51-52-53	History of Architecture	9
Arch. 57	Building Materials and Methods, Part I	4
Arch. DP I, II	Drawing and Painting, Grades I and II	12
Arch. AD-I, II	Architectural Design, Grades I and II	25

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

* 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.

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.

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. Nine credits in Communication (Com. 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

Nine 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. 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)¶

Entering freshmen are urged to take the following courses which give desirable background material in the field:

Industrial History (Econ. 1)

Industrial Production and Organization (Econ. 2)

* For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.), see Section 11 of this bulletin.

† Social Statistics (Soc. 45) not accepted in fulfillment of this requirement.

‡ 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.

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)
- Department 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 and 2, which are strongly recommended but not required, belong in the freshman year; Economics 3 may be taken in the freshman year (to make with Economics 1 and 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.

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 English A-B-C or Com. 1-2-3)	9 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 21
	90

* 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).

‡ 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).

Statistics Sequence

English (Comp. 4-5-6 or English A-B-C or Com. 1-2-3)	9 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	16 or 10
	90

D. SCHOOL OF DENTISTRY**

1. TWO-YEAR PREDENTAL COURSE

The two-year predental 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 (9 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)

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 Com. 1-2-3 (9 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

* 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).

† 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.

§ 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.

¶¶ From the School of Dentistry.

** 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.

§§ 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.

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 and 10, 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 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; 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, Home Economics Education, and Rural 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*.)

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 above 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 entering the College of Education at the beginning of their junior year:

1. A minimum of 93 credits for men and 95 credits for women, carried with a scholarship average of C. (For each five honor points in excess of the number necessary for a C

average, the number 93 or 95 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).

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.

5. Before entrance to the College of Education each student will be given a general examination designed to show his capacity to pursue professional curricula in education.

*Specific Requirements for 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.

* 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.

Before entering the College of Education the student must meet certain specific requirements in addition to those listed above. These requirements *do not apply* to the special four-year and five-year curricula.

1. The credits presented for entrance, exclusive of credits in physical education, must be earned in the following groups of college courses:

- Group A English
- Group B Foreign languages: German, Greek, Latin, Romance Languages, Scandinavian
- Group C Social sciences: Anthropology, Economics, Geography, History, Political Science, Sociology
- Group D Natural sciences: Astronomy, Botany, Chemistry, Geology and Mineralogy, Physiology, Physics, Psychology, Zoology
- Group E Mathematics
- Group F Journalism, Fine Arts, General Studies, Speech, or such other courses in other colleges or departments of the University as are approved by the College of Education

2. Within the general requirements listed above the student during his high school and Junior College years must have completed the required work indicated under A, B, C, and D below. At least 20 credits in Groups B, C, and D must be completed in college.

Subject	In High School	In College
A. English	3 years	and 9 credits in composition†
B. Language**	4 years in one language	none
	3 years in one language	and 5 credits in same language
	or	
	2 years in one language	and 10 credits* in same language
	or	
	1 year in one language	and 15 credits* in same language
	no language	20 credits in one language
C. Social sciences	2 years	or 10 credits* in one department‡
D. Natural sciences	2 years	or 10 credits* in one department§

NOTE—In lieu of the specific course requirements indicated in the language group a student may take a comprehensive examination in an elected language to be conducted by a committee appointed by the dean of the College of Education.

3. Within the total credits stipulated under paragraph 2 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

* 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) or a year course of 9 quarter credits may be substituted for the corresponding 10-credit course here.

† At the University of Minnesota this requirement may be met by completing English A-B-C (15 credits) or Composition 4-5-6 (9 credits) or Communication 1-2-3 (9 credits). Some students are exempt from the requirement.

‡ Fifteen credits in Natural Science 1f-2w-3s (Orientation in the Natural Sciences) will be accepted as a substitute for 10 credits in one natural science. Natural Science 7-8-9 (General Biology, 10 cred.) or Natural Science 4-5-6 (The Physical World, 10 cred.) will also satisfy the requirement.

§ Twelve credits in Social Science 1f-2w-3s (Introduction to Social Science) will be accepted as a substitute for credits in one social science.

** Students who feel that the language requirement would be for them a special hardship and that the requirement is not to their educational advantage may discuss the problem with the chairman of the Students' Work Committee of the College of Education, 202 Burton Hall, even tho they are still in the College of Science, Literature, and the Arts.

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 141)

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)

English: A-B-C (Freshman English, 15 credits) or 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (9 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)

* 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).

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, 25w, 7s (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 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 above stated, and may thus earn the two degrees in six years.

^{*} 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.

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 19. 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 ADMINIS-
TRATION** 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.

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

[†] 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 136 of this bulletin.

lected 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 Medical School offers six principal courses: one for physicians, one for nurses§, one for public health nurses, one for medical technologists, one for physical therapists, and one for occupational therapists. Each serves a different purpose and the requirements of each branch 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. Each of them requires 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. Applicants who become residents of the state after graduating from high school will be considered with the last named group.

Program Plans

Because of the large number of applicants to the Medical School and the consequent high percentage of students failing to qualify, *all* premedical students are urgently advised to plan their three 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.

* 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 want 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 9-12. They may find it to their advantage to take the course with an interdepartmental major rather than a major in one department. (See page 11.)

§ For the course in nursing, students should consult an adviser in the office of the School of Nursing, 125 Medical Sciences Building.

EIGHT-YEAR COURSE IN SCIENCE AND MEDICINE LEADING TO THE DEGREES OF
BACHELOR OF SCIENCE,¶ BACHLOR OF MEDICINE,¶ AND
DOCTOR OF MEDICINE¶

The minimum requirements for consideration 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 Students' Work Committee of the Medical School.

Required Courses

- English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (9 credits) or exemption from the requirement
- 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 (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); and Physical Chemistry 107 (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)
- Foreign Language—20 credits or a reading knowledge of any modern foreign language
- Psychology 1-2 (General Psychology, 6 credits)

The following subjects are recommended as electives: Introduction to Animal Parasitology, Comparative Anatomy, Agricultural Biochemistry, Anthropology, Astronomy, Botany, Composition, Drawing, Economics, English, Geography, Geology, History, Mathematics, Philosophy, Physics, Political Science, Psychology, Sociology, and Speech.

General Bacteriology, a Medical School subject, Zoology 21 (Histology), and Zoology 50 (Introduction to Comparative Physiology) may not be presented for admission to 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. He must take a battery of tests for premedical students given by the Student Counseling Bureau. The scores on these tests are considered by the Students' Work Committee in advising students and determining admission. A student applying for admission should file credentials at least six months before the admission date of the class for which he applies. 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 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.

The foregoing regulations governing the quality and amount of premedical training required for admission to the Medical School will be enforced for those who present the minimum amount of work. In cases of mature and superior students, especially those who have taken degrees and have made special progress along some line (even tho it may not have been closely related to medicine), concessions may be made. Such cases will be considered individually upon petition to the dean of the Medical School.

A broad, general education is considered fundamental to medical study, but it should be borne in mind that no student can pursue the medical course to advantage without knowledge of biology, chemistry, and physics.

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 be reduced* by application of the "quality credit" rules given on page 19.) 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 140).††

During this 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. The student must be accepted by the Medical School under the limited registration regulations of that school. Exceptions to these requirements may be granted to superior students on petition to the Admissions Committee 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.

* For a statement about "quality credits" and admission to the Medical School, see the § footnote on page 139.

† 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.

** 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 140.

¶¶ This program requires five school years but actually only four and three-fourths calendar years.

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. (See *College of Education Bulletin* and *School of Public Health Bulletin*.)

Part I—College of Science, Literature, and the Arts
(Five Quarters)

During the first five quarters the student must complete 75 credits 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 (9 credits) or exemption from the requirement
- Chemistry 1-2, 4-5, or 6-7 (Inorganic Chemistry, 8 or 10 credits)
- Zoology 1-2-3 or 14-15 (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)
- 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 (history, political science, economics, or Introduction to Social Science) other than sociology are required for students who major in public health nursing and are strongly recommended for all prenursing students. Other recommended electives are courses in anthropology, child welfare, general studies, philosophy, physics, sociology, speech, and zoology.

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 1f or 14f Public Health 3f Physical Education Electives*	English 5w or Bw or Communication 2w Chemistry 2w or 5w or 7w Zoology 2w or 15w 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>
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	(School of Nursing—1st quarter) History of Nursing 1s Nursing 12s Physiology 60s Pharmacology 8A Electives*

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 (9 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, Ext. 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.

* Electives should be chosen to make, on the average, a program of 15 credits per quarter in addition to physical education.

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 Therapy Bulletin* or write to Physical Therapy Division, W-300 University Hospitals, University of Minnesota, Minneapolis 14, Minnesota. 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 (massage and corrective exercises). Included also is the Kenny technique for the treatment of infantile paralysis. 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 (9 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)
- 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)

Sophomore Year

- Chemistry 1-2 (General Inorganic Chemistry, 8 credits) or Chemistry 4-5 (General Inorganic Chemistry, 8 credits)
- Psychology 1-2 (General Psychology, 6 credits)
- Bacteriology 53 (General Bacteriology, 5 credits)
- Child Welfare 40 (Child Training, 3 credits)
- Neuropsychiatry 60 (Psychology of the Handicapped, 1 credit)
- Anatomy 3 (Elementary Anatomy, 3 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 (9 credits) or exemption from the requirement
Inorganic Chemistry 1-2 (General Inorganic Chemistry, 8 credits)
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)
Anatomy 3 (Elementary Anatomy, 3 credits)
Bacteriology 53 (General Bacteriology, 5 credits)
Fine Arts 1-2-3 (Introduction to Art, 9 credits)
Art Education 1 (General Design, 3 credits)
Art Education 4 (Basic Drawing, 2 credits)
Art Education 31-32-33-34 (General Handcrafts, 12 credits)
Art Education 76-77-78 (Weaving, 9 credits)
Electives to make the total of at least 90 credits

For more detailed information the student should consult a special adviser in the Occupational Therapy office, 3302 Powell Hall, telephone: Main 8551, extension 347.

Advisers—All students in this course should consult a special adviser in the Occupational Therapy office, 3302 Powell Hall, 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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