and judge what is worth reading and considering. With this end in view, Reed attempts to stimulate research beyond the course requirements, by placing emphasis on individual study.

Together with a belief in the importance of independent study, the college holds that such work, to be of real value, must be based on a sound background of fundamental education. Thus the program of the first two years would include, for students in all fields, humanities, sciences, and languages. But even in freshman and sophomore years, individual conferences on student papers and projects are held regularly, and broad reading outside the assignments is encouraged.

During the last two years, independent work is given greater importance as the student selects a major field, and begins to specialize. At the end of the junior year, a qualifying examination in the chosen major department is required for admission to senior status. Though the examination stresses the individual's major field, it also tests his total preparation. Students are urged to discover their own lines of interest within a subject, and choose a topic for their senior thesis project. Some theses develop from research being carried on by faculty members. In all cases, though, the thesis requires independent research under guidance of the major professor. Sources of information and methods of investigation must be sought, facts gathered and tested, ideas analyzed, and conclusions drawn. The thesis is therefore the culmination of individual study and the test of its success.

A senior oral examination marks the completion of the college course. Here, as in the junior qualifying examination, emphasis is placed on the student's ability to handle materials thoughtfully, critically, and independently.

The cooperation that marks the relations of faculty and students in the classroom carries over into administrative details. Generally no roll is taken in class, but the student is expected to recognize his own responsibility for attending conferences and laboratory sessions, since these are the means of his active participation and progress in courses.

Reed college does not announce or release grades prior to the student's graduation. The student must find in himself and in his associations with faculty and fellow students the incentives to steady, disciplined work, and learn to measure his success, not by letter grades, but by his grasp of a subject, and by his gradual intellectual growth. Conferences with instructors and with the student's faculty adviser take the place of formal notification of grades. The adviser is selected according to the student's interests and may be changed if the student wishes. Advisers and faculty members are willing at all times to confer with students on the quality of their course work, their programs of study, and other problems. Notice is given to students whose work is unsatisfactory; in more serious instances, action is taken by the faculty only after consideration of the individual case, its particular difficulties and possible remedies.

**Curriculum**

The curriculum at Reed College covers a four-year program of liberal arts and sciences leading to the Bachelor of Arts degree. It aims to answer students' need for breadth of intellectual experience as well as for expertise in chosen fields and to give them a comprehensive grasp rather than merely technical or vocational training. The upper-class student in many cases broadens his program by courses other than those closely connected with his major field and is encouraged to try to discover the meaning of his intellectual experience as a whole.

**Program of the First Two Years**

Introductory courses of the first and second years fall into the following groups:

1. A two-year course of study in the history and literature of western society from Hellenic times to the present.

The history and literature of ancient, medieval, and modern civilizations are covered in a single course, known as Humanities 11 (or 12), given jointly by the Literature and History departments during the first year. Humanities 11 (or 12) carries the study to the point just preceding the revolutionary changes of the late eighteenth century. Humanities 21 (or 22), in the second year, introduces students to modern society and literature. The courses in humanities attempt to furnish students with a background for a critical understanding of man's social relations, his...
thought and expression, and to provide insight into present problems by an understanding of the past. All of these courses include emphasis upon practice in writing through regular papers and upon corrective criticism in frequent individual conferences.

(2) A study of present-day society in the fields of economics, politics, and sociology or anthropology.

Examination of the social scene is made in introductory courses in the social sciences available in the second year or later. The courses in principles of economics (Economics 21), comparative government (Politics 21), and introduction to sociology (Sociology or anthropology 21) introduce students to fundamental features of economic, political, and social life and to methods and points of view of the social sciences. The modern emphasis in these courses is in keeping with that in Humanities 21 (or 22).

(3) The examination of man's mind and behavior and of his systematic thinking through courses in psychology and philosophy.

These fields are primarily concerned with how and what we think. They treat of reason, imagination, and emotion. They touch conduct closely, for they are concerned with the causes and principles of action. The courses in general psychology (Psychology 21) and introduction to philosophy (Philosophy 21), both available in the second year or later, offer students a comprehensive introductory view of these fields.

(4) Study of mathematics and the natural sciences.

First-year courses in mathematics, biology, chemistry, and physics (those numbered 11) attempt to give students insight into principles of organic life and physical environment and some grasp of method and basic ideas of science. These courses aid students to obtain understanding of modern society through comprehension of science as a technique utilized by man in the mastery of nature. Second-year courses in the sciences are more specialized in character.

(5) Study of modern and ancient languages.

Beginning and advanced courses are offered in classical and modern languages. Instruction in foreign languages is intended to make available to the student a first-hand knowledge of the

life and thought of another culture. Through experience in reading another language, together with elementary instruction in linguistic theory, he is expected to develop an insight into the nature of language itself.

(6) Introduction to the arts, through a course in the history and appreciation of the fine arts, courses in music, drama, and speech, and in art studio practice.

REQUIREMENTS
(Freshman and Sophomore years)

Humanities 11 or 12*. (Must be taken by all freshmen.)
Foreign language (classical or modern) (see note, page 12).
Two courses from Group B.
One course from Group A.
Physical education throughout the first two years (see page 23).

Group B (see foot note No. 1) Group A (see foot note No. 2)
Mathematics 11  Humanities 21, or 22
Biology 11  Economics 21
Chemistry 11  Politics 21
Physics 11  Sociology 21
Natural Science 11  Psychology 21 (if not chosen
Psychology 21 (if chosen, Psych. in Group B)
21 must be taken in the Sophomore year)

Detailed descriptions of the courses will be found starting on page 40.

A normal semester's program for both freshmen and sophomores carries 15 semester hours of course credits. Such a program continued through two semesters, and completed with average Reed scholarship, earns 25.0 credit points. The requirement for junior standing is 50.0 credit points. Students who are allowed to enter the junior year with deficiencies in credit points must

*Students who take Humanities 12 (see page 41) are required to take two
Group A courses (see above).

No. 1 "Group B" courses—with the exception of Psychology 21—are first-year (11) courses in mathematics and natural science.

No. 2 "Group A" courses are second-year (21) courses in social science, psychology and philosophy.
make up the credit deficiency during the regular academic year or in summer session. Credit points and decile standings are reported to the students at the end of each year by the registrar’s office.

Program of the Last Two Years

Courses are grouped in the following four divisions:

Letters and Arts (English, French, German, Russian, Latin, Greek, Art, Drama, Music).

History and the Social Sciences (Economics, Politics, Sociology and Anthropology).

Mathematics and the Natural Sciences (Biology, Chemistry, and Physics).

Philosophy, Psychology, and Education.

Kindred subjects are grouped in divisions to avoid the isolation of specialized fields of learning. In the work of each division the treatment of particular subjects is broadened by emphasis upon their mutual relationships. The student’s major program of study is usually divisional in its scope and is supervised by the division as a whole as well as by the student’s major professor. A student may, with the consent of his adviser and of other instructors concerned, arrange a special program of upper-class inter-divisional study covering various fields to meet individual needs and interests.

At the beginning of the junior year students enter upon their major programs. Choice of the major divisions or of the alternative, an inter-divisional program, should be made before this time. Tentative choice by the end of the first year is often useful, since in some cases courses taken in the sophomore year should be elected for their bearing on the major field.

Note: Completion of 6 semester hours of a second-year course in a foreign language—classical or modern—or demonstration through a written examination of proficiency equivalent to that required to pass such a course. Examinations will be given in the regular examination period at the end of the fall semester and during the week following spring vacation.

Previous experience in a language is not required for admission and the study of a foreign language may be initiated and completed during the first two years at Reed College.

The choice of a major made on entering the junior year is not necessarily final, although it is difficult to change unless the preparation has been unusually broad or unless graduation is not expected in four years.

At the end of the sophomore year each division estimates the capacity of its prospective major students to undertake upperclass work. Notice is given students of whose success the divisions have serious doubt. A tentative program of studies for the last two years should be made out at the beginning of the junior year in conference between each student and the member of the faculty whom he has chosen as his major professor. The program should be for at least 14 units (28 semester hours) for each of the two years; and each program is subject to the approval of the division or of the divisions concerned. The student’s upperclass program remains open to subsequent revision to conform with changes in educational plan.

At the end of the junior year qualifying examinations are given to test the student’s general preparation and his ability to undertake a thesis in his chosen field of study. Entrance upon the final year of work depends upon satisfactory completion of this examination. Satisfactory completion of the thesis, an independent project of research or of critical or creative work, is required of every graduating student. The thesis must be typed and bound according to specifications, expense to be borne by the student. The senior oral examination at the close of the senior year is a two-hour discussion between each student and the teachers in his major division (or, in the case of inter-divisional majors, a special committee) with the help of teachers from other fields and, when practicable, one or more persons from outside the faculty. One hour is given to consideration of the thesis and the other to testing the student’s grasp of his field and related subjects. The quality of performance in the thesis, the senior oral, and the last two years of study are taken into account by the division or special committee in recommending candidates to the faculty for graduation.

The college seeks in the senior year to emphasize the need for a coordination of interests proper to an educated and socially-minded person; and, in so far as the requirements of specialized
work permit it, an attempt is made to bring students to recognize and evaluate the objectives and principles of the different fields of study they have engaged in, and to relate these to the individual's problem of living in society.

To this end, an Inter-Divisional Senior Symposium has been designed to provide a common core of study for seniors of all divisions and to promote an exchange of experience in an effort to understand certain critical problems of our age. Each section of the course is limited to 12 students and is guided by three faculty members representing different divisions.

Using significant works written in the past 50 years by such men as Whitehead, Dewey, Bergson and Niebuhr as a basis of discussion, the course considers interpretation of current social, economic and political issues; the problem of the relation of science to society; and the nature of science and the limits of knowledge. The last and largest part of the course concerns itself with basic diagnoses of our age made in terms of differing fundamental points of view.

THE LIBRARY

The College Library has become increasingly the laboratory in which the student's work is done, for, instead of the single volume, the whole library is now his textbook. To further the wide acquaintance with books which this assumes, the library preserves an open shelf arrangement, which facilitates direct access to nearly all the books in the collection and encourages browsing or study in any field of interest. The book collection has been built around the curriculum of the College, but materials of enduring value and general interest, which lie outside immediate curricular needs, are included. The requirement of a thesis—an independent project of research or of critical or creative work—as well as the expectation that all students will use primary sources in preparing term papers, have alike determined the character of the book holdings.

The library building, erected in 1930 with funds bequeathed by Eric V. Hauser, is the first unit of a plant which can be expanded as future needs require. The initial addition was constructed and opened for use in the fall of 1946. Two reading rooms seating nearly 200 occupy the main floor of the original unit, with books on English and American literature on the open shelves around them. The circulation desk, the nucleus of the reference collection, and the reserve book area are on the same floor. The Founders' Room in the library tower contains the Reediana collection and the Woodbridge collection of Belgian literature, together with books on music and the fine arts. Desks in it are reserved for students working on the senior thesis. Other books and periodicals of a collection totalling 94,238 books and an estimated 163,239 public documents are in open stacks in the basement and in the documents room, as well as in the biology, chemistry, and physics branch collections which, housed in the department concerned, contain the major part of the library's holdings in those fields. These branch materials are listed in the card catalog at the main library and are available to all students.

The library, reflecting campus interest in the graphic arts, has a small but growing collection of examples of well-made and printed books, in addition to significant works on calligraphy and type faces. In past years, handsomely bound sets, together with a considerable number of first editions of American and English writers, have been presented by Mr. C. F. Olds, Mrs. Helen Ladd Corbett, Mrs. W. M. Ladd, and Alexander Goldenweiser. At the present time, books about Russia are being purchased from a fund established as a memorial to Richard F. Scholz, Jr., Reed '37, who was killed in action over Makin Island in November, 1943.

Approximately 2,500 volumes a year are added to the collection, and more than 300 periodicals are received. The library is a depository for United States government documents, for United Nations publications and for those of the Carnegie Institution of Washington and of the Carnegie Endowment for International Peace. The prints and books of the Carnegie Art and Music Collections are available to students and framed reproductions of art works are rented by the semester to those who wish to enjoy them in their rooms. The collections of the Portland Library Association are readily accessible, as are those of the Oregon Historical Society. Portland residents, in turn, may utilize Reed's facilities by requesting interlibrary loans through their public library. Resources of other libraries in the Pacific Northwest, as well as
Anthropology

31—General Linguistics. 1 yr. hr.
Prerequisite: Permission of instructor.

36—Cultures of the Old World. 3 yr. hrs.

37—Cultures of the New World. 3 yr. hrs.
Scope: representative societies and widespread culture patterns in North and South America. Emphasis is on Eskimos and Indians, but New World Negroes and European peoples are included. Readings are directed toward problems and methods rather than description for its own sake.
(Not offered 1955–56.)

42—Man and Culture. 3 yr. hrs.
The major problems and theories in anthropology are covered, with original sources being read when available. Inter-disciplinary problems are emphasized. Fundamentals in cultural anthropology are reviewed.
The second semester concerns contemporary theory, particularly on culture-personality interrelationships.

Sociology and Anthropology

47—Thesis. (Sociology or Anthropology). 4 yr. hrs.

48—Independent Reading. (Sociology or Anthropology.)
Credit in proportion to work done up to 3 hours per semester. Open only to upperclassmen.

General

30—Statistics; Introduction to Statistical Methods. 4 sem. hrs.
Primary consideration is given to the analysis of the frequency distribution; sampling theory and statistical inference and simple regression analysis. Application of these measures and techniques of analysis to problems in various areas of research will also receive attention. No prerequisites, Math. 11 recommended. (Fall semester.)

30—Social Science. 4 sem. hrs.
Advanced study of the application of statistical method in the fields of social science. Prerequisite: Statistics 30. (Spring semester.)

Inter-Divisional Senior Symposium. 2 yr. hrs.
Description, Page 14. Admission by consent of staff.
REED COLLEGE

(I) For those who do not expect to use this subject professionally as a tool but desire some insight into the philosophical significance of mathematics as a system of thought and its relation to numerous human activities and fields of study, a three-unit section of Course 11 is offered (11L).

(II) For prospective workers in the biological and social sciences, chemistry, experimental medicine, and business administration, who desire to be able to understand the mathematical portions of the literature of their field and perhaps to employ mathematical ideas occasionally in their own work, a four-unit section of Course 11 may suffice (11S).

(III) Those intending to use mathematics extensively in a professional capacity—as engineers, teachers, statistical analysts, or in an actuarial office, government bureau, or research laboratory—will need some or all of the higher courses.

Anyone expecting to specialize in mathematics should take Physics 11 and Mathematics 11 in the freshman year. The instructor is to be consulted before registration for Mathematics 21 or any higher course.

11L, 11S—Introduction to Mathematical Analysis. 3-4 yr. hrs.
This course presents a very general and precise mode of thought which is basic in modern scientific method, and shows how the ideas and operations are used in the natural and social sciences, the investment world, and elsewhere. The processes are drawn from elementary calculus, analytic geometry, trigonometry, and algebra, and are fused into a unified course which presupposes no preparatory courses beyond elementary algebra and geometry.

11M—Review of Algebra. 1 sem. hr.
For students in Mathematics 11 who need remedial work in elementary techniques. (Autumn semester.)

21—Mathematical Analysis. 4 yr. hrs.
An intensive study of elementary calculus expanding the introduction in Math 11S. This is based on the theory of limits and treats infinite series, elementary differential equations, functions of more than one variable. Applications are made to examples drawn from the sciences.

21F—Topics in Analytic Geometry. 2 sem. hrs.
After an introduction to vector analysis, the course turns to topics in solid analytic geometry and differential geometry using vector notation. (Autumn semester.)

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DIVISION OF MATHEMATICS AND NATURAL SCIENCE

30—Statistics: Introduction to Statistical Method. 4 sem. hrs.
See course description, page 56.

31—Modern Algebra. 3 yr. hrs.
Concepts fundamental in modern algebra, including group, field, vector space. Polynomial equations and the application of matrix techniques are considered in some detail.

33—Higher Geometry. 3 yr. hrs.
The emphasis is on the foundations of geometry and the interconnections between various geometries. The course starts with a synthetic treatment of plane projective geometry. This leads to the introduction of coordinates and a view of Euclidean and non-Euclidean geometries as specializations of projective geometry.

35—Descriptive Geometry and Mechanical Drawing. 5 sem. hrs.
Projections of lines and surfaces; intersections; perspective drawing; shades and shadows. Applications to architecture. (Not offered 1955-56.)

41A—Advanced Calculus. 4 sem. hrs.
Fundamental properties of limits and continuous functions of several variables are applied to implicit functions, directional derivatives, continuous transformations. The Stieltje's integral, line and surface integrals, infinite series, emphasizing power-series are treated. At time permits one or more of calculus of variations, evaluation of definite integrals, Laplace Transform, complex variables are studied. (Autumn semester.)

41B—Differential Equations. 4 sem. hrs.
Ordinary and partial differential equations with emphasis on the linear differential equation and linear systems. Introduction to the use of power-series and Fourier series, operational methods, Green's function. Bessel's and other non-elementary functions are defined. (Spring semester.)

42—Number Theory. 2 sem. hrs.
Theory of prime numbers, congruences and some diophantine equations. Other topics may be selected from quadratic residues, continued fractions, geometry of numbers. (Not offered 1955-56.)

43—Special Topics. 1-2 yr. hrs.
With the approval of the staff, qualified students may elect work in topics of special interest. Open only to upperclassmen.

44—History and Philosophy of Mathematics. 2 sem. hrs.
Open only to upperclassmen. (Spring semester.)
Biology

The courses in biology are designed to give a thorough understanding of biological fundamentals. The object is to equip students with knowledge useful to them in every-day life; and further, to equip those who wish to specialize in biology with a sound foundation for doing so. These courses, with courses in related sciences, furnish preparation for the study of medicine, for teaching biology, for training as laboratory technicians, and for graduate study.

Biology courses required for the major are: 11, 21, 22, 47, and at least two of the following: 27, 31, 32, 35, 36, 37, and 41. Chemistry courses usually required are 11, 21 and 22. It is also expected that Physics 11 and Mathematics 11S or 11L will be included in a major’s program. Students who expect to teach in secondary schools should also equip themselves with the necessary psychology and education courses.

The variety of biological experiences at a marine station is such that it is greatly to the advantage of a student to take summer work at the Hopkins Marine Station at Pacific Grove, Calif., or at the Oceanographic Laboratories of the University of Washington at Friday Harbor. Of the inland stations, the University of Michigan Biological Station at Cheboygan, Michigan, is especially recommended.

Premedical students should inform themselves concerning the requirements of medical schools in which they are interested. A statement concerning requirements for such students will be found on pages 72–73 of this catalog.

Premedical students who expect to remain only three years at Reed College and major in biology should consult their advisers as to which courses to choose. Such students will receive the Reed degree after they have satisfied the college requirements and have completed two years of “Class A” medical school work with satisfactory standing.

Vocational opportunities have been reviewed briefly in another section of this bulletin. (See page 38.) Qualified graduates may be able to obtain graduate assistantships in leading universities where work toward advanced degrees will equip them for the best positions in the biological sciences.

Those who plan a career of medical research should consider graduation in biology, chemistry, or physics, followed by graduate work in anatomy, embryology, physiology, genetics, biochemistry, or biophysics leading to the Ph.D. or M.D. degree.

11S—Introductory Biology. 4 yr. hrs.

The purpose of this course is to furnish an understanding of biological phenomena which are encountered in the ordinary course of life, such as the structure and function of plants and animals, their relation to each other and to their environment, the biological factors of disease, the principles of heredity and genetics, the evidence and theories of organic evolution, and the structure and function of the human organism. The last third of the course includes reading in physiology. This course is a prerequisite for any further work in biology, except that in special cases, with the permission of the instructor, Biology 11L may be considered as sufficient background for certain other courses. Two lectures, one conference, and two three-hour laboratory periods weekly.

11L—Introductory Biology. 3 yr. hrs.

For students who do not intend to major in science. The same course as Biology 11S except that there will be but one three-hour laboratory period weekly.

21—Comparative Anatomy of the Vertebrates. 4 sem. hrs.

A study of the comparative anatomy and of the geological and evolutionary history of vertebrate animals and their primitive relatives. Two lectures and two three-hour laboratory periods weekly. Prerequisite: Biology 11. Due to schedule conflicts Biology 21 and Chemistry 31 cannot be taken concurrently. (Autumn semester.)

22—Embryology. 4 sem. hrs.

A study of embryological processes among vertebrate and invertebrate animals, including some of the problems approached through the experimental method. Prerequisites: Biology 11, Biology 21. Two lectures and two three-hour laboratory periods weekly. (Spring semester.)

27—Plant Evolution. 4 sem. hrs.

A study of the major groups of plants, with emphasis on the evolutionary development of vascular plants. The major factors operating in plant evolution as well as the major changes in the morphology and physiology of plants will be considered. Two lectures and two three-hour labs per week. Prerequisite: Biology 11. (Autumn semester.)
Courses for Women:

11—Fundamentals of Physical Education. 1–2 yr. hrs.
   The study of rules, fundamentals and practice of team sports and the
   conduct of tournaments. The 2 yr. hrs. emphasizes officiating, leading
to National Officials' ratings. Prerequisite: Playing knowledge of
   sports.

12A—Playground Leadership. 2 sem. hrs.
   The problems of playground supervision and group leadership. It
   includes the selection and adaptation of play activities for different
   age groups. The administration and organization of municipal recrea-
tion departments. (Autumn semester.)

21A—Special Methods in Physical Education. 2 sem. hrs.
   This first semester course includes the techniques of rhythmic activities
   and body mechanics and their application to rhythms for children,
   social, modern, and folk dancing. (Autumn semester.)

21B—Special Methods in Physical Education. 2 sem. hrs.
   The study of rules, fundamentals and practice of individual and dual
   sport; tennis, badminton, and swimming. (Spring semester.)

31—Organization and Administration of Physical Education.
   3 yr. hrs.
   The history of physical education, the aims and objectives leading to
   the study of teaching methods, problems of curriculum and depart-
   menal organization and administration.

41—Problems in Health, Physical Education, and Recreation.
   3 yr. hrs.
   Selected reading and discussion of trends and current problems in these
   fields. Open only to upperclassmen with the approval of the staff.

Courses for Men and Women:

12B—Camp Counselorship. 2 sem. hrs.
   This course is designed for students interested in camp counseling.
   (Spring semester.)

25—Dance Composition. 1 sem. hr.
   Designed for students specializing in physical education, art, music or
   drama. Dance composition, production and the relation of the dance
to other art forms. Prerequisite: One term of modern dance techniques.

General

30—Statistics: Introduction to Statistical Method. 4 sem. hrs.
   See course description, page 58. (Autumn semester.)

Inter-Divisional Senior Symposium. 2 yr. hrs.
   Description, Page 14, Admission by consent of staff.

DEGREES

BACHELOR OF ARTS

The requirements for the degree of Bachelor of Arts regularly include:

1. 50 credit-for-quality points (or full junior standing) plus 28 year hours
   of upperclass studies, 14 of which are to be taken after passing the junior
   qualifying examination. Students may be admitted to senior standing from
   other colleges, but in all cases the work of the senior year is to be done while
   in attendance at Reed College.

2. Fulfillment of the freshman and sophomore requirements (see pages
   9–11).

3. Passing of the junior qualifying examination at the end of the junior year.

4. Satisfactory completion of a second-year course of at least six semester
   hours in a foreign language or demonstration through a written examination
   of equal proficiency.

5. Satisfactory completion of the program of study approved by the
   major division, or by the inter-divisional committee, for the last two years.

6. Thesis, or equivalent project, and comprehensive examination under
   supervision of a division or the inter-divisional committee.

Exceptions to the senior year resident requirement will be
granted in the following cases:

1. To students who participate in the combined pre-engineering and
   pre-forestry programs. (See pages 71–72.)

2. To students who satisfactorily complete two years of work at a
   "Class A" medical school after three years' pre-medical study at Reed. (See
   page 72.)

3. To students who participate in the joint five-year course with the
   Portland Museum Art School. (See page 48.)

MASTER OF ARTS IN EDUCATION

A program leading to an M.A. in Education is offered as part
of the summer session and in connection with evening seminars
offered during the academic year. This program permits teachers


   to fulfill fifth year requirements for the regular state certificate
and to concentrate their graduate study in various areas such as
the following: Behavioral science, Biological science, Drama,
Education, Literature, Mathematics, Physical Science, Social
Science, and Visual arts.

The College issues a special bulletin describing in more detail
its program leading to the Master of Arts Degree in Education.