

1924-1925

Graduation Requirements: and Major Group

CURRICULUM

GENERAL DESCRIPTION

The curriculum of Williams College provides, in the first place, for a distribution of the student's work among the three Divisions of

- I Foreign Languages
- II English, History, Government, Economics, Philosophy
- III Sciences

and, in the second place, for the concentration of part of his work in one well-defined field. Distribution of work is secured in Freshman year by a system of requirements and options based upon entrance credits; and in subsequent years by the requirement that every student shall take, after the completion of Freshman year, at least two year-courses in each of the Divisions other than the one in which his work is concentrated; at least one course in each of these Divisions must be taken in Sophomore year. The following courses will not be accepted as satisfying the Division requirement: the introductory course in Italian (Italian 1-2); any course in Spanish; any course of admission grade in French or German (French 1-2, French 3-4, German 1-2,* German 3-4*), except that French 3-4 or German 3-4 may be so counted whenever the student has been required, under the rules governing Freshman elections, to begin one of these languages in Freshman year. Concentration of work is secured by requiring each student to choose a Major Group consisting in general of an introductory Sophomore course, three prescribed courses in Junior year, and two advanced year-courses, or their equivalent in se-

* Because of the failure of many preparatory schools to teach German during recent years, German 1-2 and German 3-4, if taken in college before Junior year, and German 3-4, if taken in college subsequent to the completion of German 1-2 as herein provided, will for the present be accepted in satisfaction of the Division requirement.

mester-courses, in Senior year. Aside from the restrictions resulting from Major Groups and Division choices, the student's work is elective.

The Exhibit of Divisions and Major Groups is given on pages 67-69. All elections are subject to the prerequisites published on page 72 and following.

Any student of very high scholarship may, with the written approval of the professors concerned, petition the Faculty for greater freedom in electing the courses of the Junior and Senior years than the rules of the curriculum ordinarily permit. Such petitions will be referred to the Advisory Committee for consideration and report to the Faculty, and will be decided with a view to the establishment in due time of a system of honors courses. The recent introduction of pro-seminar courses in several departments is a step in this direction.

FRESHMAN YEAR

In his Freshman year a student must continue Latin or Greek and must elect four other courses, three from certain prescribed options and one from any courses open to Freshmen for which he has the proper prerequisites. The courses in Hygiene, Public Speaking, and Physical Training are also required.

SOPHOMORE YEAR

From those courses open to Sophomores, the student must choose five, at least one of which shall be in each Division. One of these shall serve as the introductory course of the Major Group which is to be selected at the beginning of the Junior year. The restrictions (see page 60) concerning the election of modern language courses as Division choices must be observed. The required course in Physical Training must also be taken.

JUNIOR YEAR

Each student must take the three courses of the Major Group that he has selected. He must also elect two other courses. If he has not during the Sophomore year completed the Division

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requirement, he must do so in either the Junior year or the Senior year.

SENIOR YEAR

T Each student must complete his Major Group by taking two year-courses, or their equivalent in semester-courses, from those in the Group. He must also elect at least two other year-courses, or their equivalent, completing, if he has not already done so, the Division requirement. No beginning course in a language may be taken in Senior year, except Italian 1-2, without the consent of the Advisory Committee.

GRADES

The following grade system of marking is used:

There are five grades, namely, A, "excellent"; B, "good"; C, "fair"; D, "passable"; E, "failure."

The interpretation of the several grade names, "excellent," "good," "failure," etc., rests wholly with the judgment of the individual instructor.

COMPLETION OF COURSES

A course will be considered as completed for any semester when the student has obtained a grade as high as D on the daily work (which shall include all oral or written exercises prior to the semi-annual examinations) and the semiannual examination combined.* A student who receives a grade of E must repeat the course, or, if it is an elective, take an equivalent, subject to the approval of the Advisory Committee. In certain year-courses a failure in the first semester may, if the instructor and Advisory Committee approve, be canceled by a grade as high as C gained in the second semester. A failure in French 1-2, French 3-4, German 1-2, German 3-4, Spanish 1-2, or Spanish 3-4 may be canceled by passing the corresponding admission examinations in June or September with a mark as high as 75. College credit in these courses may not be obtained by admission examinations after the beginning of the third year in college.

* A student deficient in his daily work will not be admitted to the semiannual examination.

GRADUATION

The number of year-courses, or their equivalent in semester-courses, required for graduation is 20; but every student, in order to be graduated, must have attained a grade above D in at least one-half the number of year-courses, or their equivalent in semester-courses, taken by or credited to him in college; and all courses regularly taken in the Senior year must be passed, even though they may not be necessary for completing the number of courses indicated above. G

BACHELOR OF ARTS

The degree of Bachelor of Arts is conferred by vote of the Trustees at the annual Commencement upon students who have completed the requirements as to courses and grades to the satisfaction of the Faculty, have paid to the Treasurer all college dues and other college charges, and have returned all books belonging to the library; but the degree may be forfeited by misconduct at any time previous to the close of the Commencement exercises.

CLASS IN DRAWING

In addition to the courses in the history of art, the department offers this year instruction in drawing. This course will be under the direction of Mrs. William M. R. French and is open to all students. The class will meet once a week through the year. No college credit is given for this work.

1924-1925 Courses Available:

DIVISION III

MATHEMATICS

Professor HARDY, *Chairman*, Assistant Professor SHEPARD, Assistant Professor AGARD, and Assistant Professor WELLS.

Mathematics 1-2. Plane Trigonometry, Advanced Algebra, Analytical Geometry, and Surveying

Freshman course, optional with PHYSICS 1-2.

Group letters, I, D; II, E; III, A; IV, B; V, E; VI, C; VII, H
Examination group, R

Plane Trigonometry. Logarithms; trigonometric functions; trigonometric analysis; solutions of right and oblique triangles.

Advanced Algebra. Graphical methods; complex numbers; determinants; theory of equations.

Analytical Geometry of straight line, circles, parabola, ellipse, and hyperbola.

Field Work in Surveying. This portion of the course is optional.

Professor HARDY, Assistant Professor SHEPARD, Assistant Professor AGARD, and Assistant Professor WELLS.

Mathematics 21-22. Advanced Algebra and Analytical Geometry

Freshman course, optional with PHYSICS 1-2, for those who have admission credit in MATHEMATICS F.

Group letters, I, G; II, H; III, B
Examination group, R

Use of slide rule, including trigonometric scales; complex numbers; probability; construction and use of graphical charts in computation.

Analytical geometry of the straight line, conics, and special curves; polar coordinates; parametric equations; analytical geometry of three dimensions.

Assistant Professor SHEPARD.

Mathematics 3-4. Elementary Calculus

Prerequisite, MATHEMATICS 1-2 or MATHEMATICS 21-22.

Sophomore elective course. Group letters, I, A; II, G; III, D
Examination group, R

Differentiation and simple methods of integration. Definite integrals. Maxima and minima; curvature; determination of plane areas, lengths of curves, areas and volumes of solids of revolution, etc.

Professor HARDY and Assistant Professor WELLS.

Mathematics 5-6. Advanced Calculus

Prerequisite, MATHEMATICS 3-4.

Junior elective course. Group letter, K
Examination group, K

Majoring in Math is
evidently not possible. But p 60. describes
"concentration"

This course continues the work begun in *Mathematics 3-4*, and takes up more advanced methods of integration; multiple integration, the determination of areas, volumes, mean values, centers of gravity, moments of inertia, approximate integration, etc. It also includes partial differentiation, infinite series, Taylor's Series, and an introduction to differential equations.

Professor HARDY.

Mathematics 7-8. Descriptive Geometry

Prerequisite, MATHEMATICS 3-4 or MATHEMATICS 21-22. Group letter, H
Junior elective course. Examination group, H

Problems of the straight line and plane, curved surfaces, intersections and development of surfaces, simple warped surfaces. Elements of shades and shadows, and perspective. Anthony and Ashley's *Descriptive Geometry* and Fishleigh's *Problems* are used as text-books. Assistant Professor WELLS.

Mathematics 9. Differential Equations

Prerequisite, MATHEMATICS 5-6. Group letter, B
Senior elective course. Examination group, B

Methods of solution of the simpler forms of ordinary and partial differential equations, integration in series, applications to problems in geometry and the physical sciences, etc. The course is based on Murray's *Differential Equations*. Assistant Professor WELLS.

Mathematics 10. Modern Methods in Geometry

Prerequisite, MATHEMATICS 5-6 or MATHEMATICS 7-8. Group letter, B
Senior elective course. Examination group, B

Projection, projective and perspective relationships, harmonic and anharmonic ratios, involution, conics, poles and polars, reciprocation, inversion, etc. Assistant Professor WELLS.

Statistics 1-2

Prerequisite, MATHEMATICS 1-2 or MATHEMATICS 21-22. Group letter, I
Junior elective course. Examination group, I

The first semester: *Theory and Methods of Statistics*. Collection and compilation of statistics; graphical methods; averages; interpolation; frequency distributions; probability curve; measures of dispersion and correlation. Analysis of statistical tables. Important sources of published statistics. Use and computation of index-numbers, with special study of the statistical methods used by the Harvard Committee on Economic Research. Three lectures and recitations and one two-hour laboratory period each week.

The second semester: *Mathematics of Finance*. Theory of interest and discount; annuities; amortization; valuation of bonds; sinking funds and depreciation. Methods of computation of interest-tables and bond-tables. Introduction to actuarial mathematics; endowments, life annuities, computation

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of insurance premiums and reserves. Hart's *Mathematics of Investment* is the text-book used. Assistant Professor SHEPARD.

PHYSICS

*Professor McELFRESH, Acting Professor STIFLER, Assistant Professor BRINSMADE, Chairman, Mr. EATON, and Mr. WELCH.

Physics 1-2. General Physics

Freshman course, optional with MATHEMATICS 1-2 or MATHEMATICS 21-22.
Fee, \$5. Group letters, I, C; II, K
Examination groups, I, C; II, K

This course deals with the elementary facts and principles of physics and with the applications of physical laws to the experiences and phenomena of daily life. It includes elementary mechanics, sound, heat, light, magnetism, and electricity. Lectures and recitations (three hours a week) and laboratory work (one two-hour exercise a week). Problem work throughout the year. For laboratory work the class is divided into small sections; two-hour periods are assigned for this work to fit individual schedules.

Assistant Professor BRINSMADE, Acting Professor STIFLER, Mr. EATON, and Mr. WELCH.

Physics 3-4. Experimental Physics

Prerequisite, PHYSICS 1-2. Group letters, L-M
Sophomore elective course. Examination group, L
Fee, \$10.

Mechanics, sound, heat, light, magnetism, and electricity. This course consists of a series of physical measurements in the laboratory, accompanied by lectures. The lectures deal with the methods and principles involved in the laboratory work and also discuss certain physical problems that do not readily lend themselves to laboratory experimentation. In the laboratory work high-grade instruments of precision are employed, and the course is expected to give some skill in accurate measurement. The primary object of the laboratory work is to enable the student to familiarize himself with physical phenomena by direct personal observation. Lectures and recitations (two hours a week), and laboratory work (two two-hour periods a week). Problem work throughout the year.

Acting Professor STIFLER, Assistant Professor BRINSMADE, and Mr. EATON.

Physics 5-6. Electricity and Magnetism

Prerequisite, PHYSICS 3-4. Students taking this course must have taken or be taking MATHEMATICS 3-4.
Junior elective course. Group letter, I
Fee, \$10. Examination group, I

* Absent on leave.