

Bryn
Mawr
50 1914-
1915

COURSES OF STUDY.

instruction and discipline as is received by the scientific student. The one year's course in philosophy is a general introduction into the study of the laws, conditions, and history of thought.

Post-major Courses.

In almost all departments post-major courses, truly advanced courses which answer to graduate courses in many colleges, are organised and may be elected by students that have completed the major, or group, work in the subject.

Free Elective Courses.

All minor courses that do not presuppose required courses may be elected by any student, and special free elective courses of one, two, or three hours a week, are offered in many departments.

Courses of Study.

There are offered each year to undergraduates major courses of five hours a week, for two years, in the following subjects: Greek, Latin, English, German, French, Italian and Spanish, Modern History, Ancient History, Economics and Politics, Philosophy, Psychology, Classical Archæology, History of Art, Mathematics, Physics, Chemistry, Geology, and Biology; and elective courses in the above and in Biblical Literature, Experimental Psychology, and Education.

Graduate courses are offered in Sanskrit, and Indo-European Philology, Greek, Latin, English Philology including Anglo-Saxon, Early and Middle English, English Literature, German Literature, Gothic, Teutonic Philology, Old Norse, Old High German, Middle High German, Old Saxon, Modern and Old French, Italian, Spanish, and other Romance Languages, Hebrew, Aramaic, Assyrian, Biblical Literature, History, Economics and Politics, Social Economy and Social Research, Philosophy, Psychology, Education, Classical Archæology, Mathematics, Physics, Chemistry, Physical Chemistry, Geology, Mineralogy, Palæontology, Morphology, Physiology, and Biochemistry.

Courses in Language and Literature.

The courses in language and literature are meant, first of all, to be complete in themselves and extensive enough to meet the needs of special students, and secondly, to facilitate the study of comparative philology or of comparative literature. Whenever it has been practicable, as in Greek and Latin and in the modern languages, one half of the major course has been devoted to strictly linguistic studies, and the other half to the history of

If a student at the end of her junior year, or in February of her senior year, has received a grade *below* seventy per cent in as many as one-half of the hours that she has offered for examination of the one hundred and twenty required for the degree, she will not be allowed to graduate at the end of her senior year; but if she wishes to continue her studies at Bryn Mawr College, must plan to remain for an additional year or for a longer period. She will be on probation during this time and her work will be prescribed by a committee of the Faculty, the object being to enable her to improve the quality of her work so that she may not ultimately be disqualified by her grades from obtaining a degree.

No student who has received a grade below seventy per cent in as many as one-half of the hours that she has taken will be permitted to hold office in any of the organisations of the college, to take part in any entertainment requiring preparation, or to undertake any paid work.

The following course of study must be pursued by every candidate for the degree of Bachelor of Arts:

Required Studies. *Greek or French or German**, five hours a week for one year, when this subject has not been included in the examination for matriculation. Those students, however, who wish to omit Greek may substitute for the required course in Greek the minor course in Latin.†

20 hr *English*, five hours a week for two years.

10 *Philosophy and Psychology*, five hours a week for one year.

10 *Science*, five hours a week for one year.

10 *Science, or History, or Economics and Politics, or Philosophy, or Psychology, or Mathematics*, five hours a week for one year.

40 *Two Major Courses*, of five hours a week for two years each, constituting one of the following Groups: any Language with any Language;‡ Latin or Greek with Ancient History; Comparative Literature with English, or German, or Italian, or Spanish;‡ Ancient History with Classical Archaeology; History with Economics and Politics; Modern History with German, or French, or History of Art; Philosophy or Psychology, or Philosophy and Psychology§ with Greek, or English, or Economics and Politics, or Mathematics, or Physics; Philosophy with Latin or Psychology; Psychology with Biology; Classical Archaeology with Greek, or Latin; History of Art with French, or German, or Italian, or Spanish; Mathematics with Greek, or Latin, or Physics, or Chemistry, or Geology, or Biology; any Science with any Science.

* The College provides matriculation classes, five hours a week throughout one year, for those students who in the examination for matriculation may have omitted Greek, French, or German. Attendance on these classes is not obligatory before the beginning of the junior year, the student being free until then to make good her deficiencies by private study.

† A student choosing Latin as one of the languages of her Group, and not wishing to study Greek, may substitute for the year of minor Latin five hours a week for one year of post-major Latin, or a year of French, or German, or Italian, or Spanish.

‡ For the purpose of forming a group, Italian and Spanish may count as one language; they may be combined so as to form a course of five hours a week for two years.

§ For the purpose of forming a group, philosophy and psychology may be combined so as to form a course of five hours a week for two years.

110 or 120 hr

Free Elective Courses, amounting to ten hours a week for one year, to be chosen by the student. It should be noted that a single study may be taken as a free elective, without electing the group that includes it, and any courses open as free electives, may be chosen without taking the remainder of the minor course of which they may form a part.

Free Elective Courses.
20 hr

The studies required for a degree may for convenience be tabulated as follows:

Tabular Statement.

Required Courses (Five hours a week for One Year Each).

1 and 2. English. (Two Courses.)	3. Philosophy and Psychology.	4. Science: Physics, or Chemistry, or Geology, or Biology.	5. Science, or History,* or Economics and Politics, or Philosophy, or Psychology, or Mathematics.	6.† Matriculation French, or Matriculation German, or Matriculation Greek (or Minor Latin).
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Two Major Courses (Five hours a week for Two Years Each).

Constituting any one of the following sixty-eight groups:

I—XX. Any Language with any Language† (Twenty Groups).	XXI. Comparative Literature with English.	XXII. Comparative Literature with German.	XXIII. Comparative Literature with Italian.
XXIV. Comparative Literature with Spanish.	XXV. Comparative Literature with Italian and Spanish.‡.	XXVI. Ancient History with Greek.	XXVII. Ancient History with Latin.

* A student electing modern history as one of her group subjects and offering history in place of the second year of science must offer five hours of post-major work in this subject.

† The College provides matriculation classes, five hours a week throughout one year, for those students who in the examination for matriculation may have omitted Greek, French, or German. Attendance on these classes is not obligatory before the beginning of the junior year, the student being free until then to make good her deficiencies by private study. Students not wishing to study Greek may substitute the college course in minor Latin or the advanced standing examination in minor Latin for the examination in matriculation Greek. Minor Latin may not be offered for examination without attending the college class after the close of the matriculation examinations at the beginning of the junior year.

‡ For the purpose of forming a group, Italian and Spanish may count as one language; they may be combined so as to form a course of five hours a week for two years.

XXVIII. Ancient History with Classical Archæology.	XXIX. Modern History with Economics and Politics.	XXX. Modern History with German.	XXXI. Modern History with French.
XXXII. Modern History with History of Art.	XXXIII. Economics and Politics with Philosophy.	XXXIV. Philosophy with Greek.	XXXV. Philosophy with Latin.
XXXVI. Philosophy with English.	XXXVII. Philosophy with Psychology.	XXXVIII. Philosophy with Mathematics.	XXXIX. Philosophy with Physics.
XL. Philosophy and Psychology with Economics and Politics	XLI. Philosophy and Psychology with Greek	XLII. Philosophy and Psychology with English	XLIII. Philosophy and Psychology with Mathematics.
XLIV. Philosophy and Psychology with Physics.	XLV. Psychology with Economics and Politics.	XLVI. Psychology with Greek.	XLVII. Psychology with English.
XLVIII. Psychology with Mathematics.	XLIX. Psychology with Physics.	L. Psychology with Biology.	LI. Classical Archæology with Greek.
LII. Classical Archæology with Latin.	LIII. History of Art with German.	LIV. History of Art with French.	LV. History of Art with Italian.
LVI. History of Art with Spanish	LVII. Mathematics. with Greek.	LVIII. Mathematics with Latin.	LIX. Mathematics with Physics.

LX. Mathematics with Chemistry	LXI. Mathematics with Geology.	LXII. Mathematics with Biology.	LXIII-LXVIII. Any Science with any Science (Six Groups).
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Free Elective Courses.

Ten hours a week for one year in any subject, or subjects, the student may elect.

All candidates for the degree of Bachelor of Arts must elect their courses in accordance with the Group System, and an understanding of the principles of the system is necessary for an intelligent selection of courses.

In all departments as yet fully organised there is a course of five hours a week for two years, called a Major Course. Whenever one year of this course is of such a nature that it may be taken separately, it is designated as a Minor Course. Every candidate for a degree is required to take two such major courses as shall be homogeneous, or shall complete each other, and major courses which fulfil this condition are designated as Groups. The object of this system is to enable the student to acquire the foundations of a specialist's knowledge; and the Required Courses, namely, English, philosophy, science, (or, if a second year of science be not elected, history, or economics and politics, or philosophy, or psychology, or mathematics), are intended in part to supplement the Group, and in part to insure a more liberal training than could be obtained if every student combined elective studies at pleasure.

The required two years' course in English serves as a general introduction to the study of language and comparative literature. The required two years in science (or the substitute permitted of one year's course in science and one year's course in history, economics and politics, philosophy, or psychology, or mathematics), permit the student of chemistry and biology to pursue advanced courses in one or both of these branches, or to take a major course in physics; and they give for one year at least to the student of history and literature the same kind of instruction and discipline as is received by the scientific student. The

*The
Group
System.*

*Major
Course.*

*Required
Courses.*

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Post-major Courses.

In almost all departments post-major courses, truly advanced courses which answer to graduate courses in many colleges, are organised and may be elected by students that have completed the major, or group, work in the subject.

Free Elective Courses.

All minor courses that do not presuppose required courses may be elected by any student, and special free elective courses of one, two, or three hours a week, are offered in many departments.

The following may serve as examples of some of the many combinations of studies that may be made by those candidates for a degree who wish to specialise as far as possible in particular departments: Matriculation French, Matriculation German, Matriculation Greek, and Minor Latin are bracketed as being subjects that may be included in the examination for matriculation. These bracketed courses may be offered for examination before the beginning of the junior year without attendance on the college classes, but this is not advised on account of their difficulty.

CLASSICS. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek], English, Philosophy, Science (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History, or Minor Economics and Politics, or Minor Philosophy, or Minor Mathematics). *As a Group*, Greek and Latin. *As Free Electives*, Post-major Greek and Latin, or Classical Archæology, ten hours a week for one year.

MODERN LANGUAGES (other than English). *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Science (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History, or Minor Economics and Politics, or Minor Mathematics). *As a Group*, German and French, or German and Italian and Spanish, or French and Italian and Spanish. *As Free Electives*, Italian and Spanish, or Post-major French or German, ten hours a week for one year.

ENGLISH. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Science (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History, or Minor Economics and Politics, or Minor Philosophy). *As a Group*, Greek and English, or Latin and English, or English and German, or English and French, or English and Italian and Spanish, or English and Spanish, or English and Comparative Literature,

or English and Philosophy. *As Free Electives*, Latin and German, ten hours a week for one year.

MATHEMATICS (with Greek). *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek], English, Philosophy, Physics, another Science, (or Post-major Mathematics, or Modern or Ancient History, or Minor Psychology). *As a Group*, Mathematics and Greek. *As Free Electives*, Post-major Mathematics and Post-major Greek, ten hours a week for one year.

MATHEMATICS (with Physics). *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Chemistry, another Science (Geology, or Biology), or Post-major Mathematics. *As a Group*, Mathematics and Physics. *As Free Electives*, Post-major Mathematics and Post-major Physics, ten hours a week for one year.

MODERN HISTORY. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, any Science, another Science, (or Ancient History, or Post-major History, or Economics and Politics, or Minor Philosophy, or Mathematics). *As a Group*, Modern History and Economics and Politics. *As Free Electives*, Post-major Modern History and Post-major Economics and Politics, ten hours a week for one year.

PHILOSOPHY (with Greek). *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek], English, Philosophy, Science, (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History, or Minor Economics and Politics, or Minor Mathematics). *As a Group*, Greek and Philosophy. *As Free Electives*, Post-major Greek and Minor Psychology ten hours a week for one year.

PHILOSOPHY (with English). *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Science, (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History, or Minor Economics and Politics). *As a Group*, English and Philosophy. *As Free Electives*, Psychology and Comparative Literature, ten hours a week for one year.

MODERN EUROPEAN HISTORY (with French). *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Science, (Physics, or Chemistry, or Geology, or Biology), another Science, (or Ancient History, or Minor Economics and Politics, or Minor Philosophy, or Minor Mathematics). *As a Group*, Modern European History and French. *As Free Electives*, Post-major French and Major Ancient History, or Post-major Modern History.

PHILOSOPHY OR PSYCHOLOGY (with Economics and Politics, or with Mathematics, or with Physics). *As Required Studies*, [Matriculation

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French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Science, (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History). *As a Group*, Philosophy or Psychology with Economics and Politics, or with Mathematics, or with Physics. *As Free Electives*, Post-major Economics, or Mathematics, or Physics, ten hours a week for one year.

CLASSICAL ARCHÆOLOGY (with Greek). *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek], English, Philosophy, Science (Physics, or Chemistry, or Biology, or Geology), another Science, (or Modern, or Ancient History, or Minor Philosophy, or Mathematics). *As a Group*, Greek and Classical Archæology. *As Free Electives*, History of Art, or Post-major Greek, or Minor Latin, ten hours a week for one year.

SCIENCE. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Science, (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History, or Minor Economics and Politics, or Minor Philosophy, or Minor Mathematics, or Elective Mathematics). *As a Group*, Physics and Chemistry, or Physics and Geology, or Physics and Biology, or Chemistry and Geology, or Chemistry and Biology, or Geology and Biology. *As Free Electives*, Mathematics and Physics, or Chemistry, or Geology, or Biology, ten hours a week for one year.

PRELIMINARY MEDICAL COURSE. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Minor Physics, Major Physics. *As a Group*, Chemistry and Biology. *As Free Electives*, Post-major Biology and Post-major Chemistry, or Minor Latin, (if not taken as a required study) ten hours a week for one year.

PREPARATION FOR SOCIAL SERVICE. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Minor and Major Biology. *As a Group*, Economics and Politics and Philosophy. *As Free Electives*, Post-major Economics and Politics, or Modern History, or Mathematics.

The following combinations may be adopted by those who wish to pursue a three years' course in history, economics and politics, or science, or English, yet do not wish to elect an historical, or economic, or a scientific or language group.

I. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, any Science, Modern History. *As a Group*, any Language with any language, or Chemistry and Biology. *As Free Electives*, Ancient History, five hours a week for one year, and Major Modern History five hours a week for one year.

II. *As above*, but for Modern History substitute Minor Economics and Politics, and for Ancient History, Major Economics and Politics, and for Major Modern History, Post-major Economics and Politics.

III. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Physics and Chemistry, or Geology, or Biology. *As a Group*, any Language with any language. *As Free Electives*, Major and Post-major Physics, or Chemistry, or Geology, or Biology, five hours a week for two years.

IV. *As Required Studies*, [Matriculation French, or Matriculation German, or Matriculation Greek, or Minor Latin], English, Philosophy, Science, (Physics, or Chemistry, or Geology, or Biology), another Science, (or Modern, or Ancient History, or Minor Economics and Politics, or Minor Philosophy, or Minor Mathematics). *As a Group*, Greek and Latin. *As Free Electives*, Minor and Major English, five hours a week for two years.

Every undergraduate student is expected to consult the Dean of the College in regard to the details and best arrangement of her various studies, and to register her course of study in the president's office before entering upon college work.

The studies leading to the degree of Bachelor of Arts, may, as a rule, be taken in any order preferred by the student, but students are advised to plan their work carefully in advance with reference to the lecture schedule in order that a conflict of hours may not later in their course prevent them from electing all the studies which they desire. Students who elect English as a major study, for example, must take the general English literature lectures and essay work in their first and second years in the college because they are required to complete this work before entering the major course in English. Students who elect comparative literature as a major subject are recommended to elect languages early in their course. Students choosing a scientific group, such as chemistry and biology, must arrange their courses so as to avoid conflicts in the hours for laboratory work. Trigonometry is required for the work of the major year of the group course in physics.

Those students who have not decided on their group may in the first year pursue required studies only, or may elect one of the courses belonging to the group to which they most incline, with the understanding that if they should desire to change their group that course will be counted as a free elective; those

students whose tastes are already fully formed, or who are uncertain how many years they shall remain in college, may enter at once on free elective studies and on the study of both subjects of their group. There are obvious advantages for the student in deferring as long as possible the choice of her free electives and her group, inasmuch as the required studies, by accustoming her to the methods of laboratory work, and to the study of languages, literature, and history, afford her every opportunity of ascertaining her true tastes and aptitudes.

The students are not divided into the traditional college classes and there is no limit of time for graduation; in order to pursue a wider course of reading in connection with single subjects, or to attend a greater variety of lectures, the ablest students may choose to defer graduation; personal considerations only determine the time spent in completing the studies required for a degree. Nevertheless these requirements constitute strictly a four years' course; that is to say, if the time given to lectures and class work be, as is usual, fifteen hours a week, a student passing the ordinary matriculation examination, and availing herself of the preliminary courses of the college in the subjects which that examination did not include, in all cases requires precisely four years. To give more time for advanced studies and to lighten the college course, students are permitted to take examinations in certain subjects included in the course without attending the college classes in these subjects. Trigonometry, solid geometry, and the fourth language (Matriculation French, or German, or Greek, or Minor Latin) may be taken in this way if offered not later than the beginning of the junior year. A student who can furnish proof that she has acquired advanced knowledge of German or French by attendance on regular advanced classes conducted by a school, or college, or by visiting teachers, or by residence abroad, or by study under German or French governesses at home, is permitted to take examinations for advanced standing in reading and composition in these languages, but only in the first three weeks after entering college. Students entering college at the beginning of the second semester are not permitted to register for more than fifteen hours of college work, or to offer advanced standing

examinations in order to complete the work required for a degree in less than four years.

Graduates of Bryn Mawr College, and graduates of other colleges who shall have satisfied the Academic Council that the course of study for which they have received a degree is equivalent to that for which the degree of Bachelor of Arts is given by Bryn Mawr College, or who shall have attended such additional courses of lectures as may be prescribed, may apply to the Academic Council to be enrolled as candidates for the degree of Doctor of Philosophy and Master of Arts; admission to the graduate school does not in itself qualify a student to become a candidate for this degree. A separate degree of Master of Arts is open to graduates of Bryn Mawr College, but to them only:

*Studies
Leading
to a
Second
Degree.*

The candidate for the degree of Master of Arts must be a Bachelor of Arts of Bryn Mawr College, and must have studied for one full year in the graduate school of Bryn Mawr College, devoting herself to systematic advanced work approved by the Graduate Committee of the Academic Council. The candidate must submit her proposed course of study for the approval of this committee on or before the second Wednesday in November. She must pass a special written examination on each subject to the satisfaction of the department in which she has studied, and must announce her candidacy to the President not later than the first day of May in the academic year in which the degree is to be conferred.

*The Degree
of
Master of
Arts.*

The Degree of Doctor of Philosophy and Master of Arts may be conferred upon graduates of Bryn Mawr College, and upon graduates of other colleges who shall have satisfied the Graduate Committee either that the course of study for which they received a degree is equivalent to that for which the degree of Bachelor of Arts is given by Bryn Mawr College, or that it has been adequately supplemented by subsequent study. The degree is given to no one who cannot read French and German, or who is unacquainted with Latin. The degree of Doctor of Philosophy will in no case be conferred by the College as an honorary degree.

*The Degree
of
Doctor of
Philosophy
and
Master of
Arts.*

The candidate must devote to graduate work the equivalent of three full years of which at least two must be spent at

GRADUATE COURSES.

Graduate Courses. Two hours a week of seminary work are offered each year to graduate students of history of art accompanied by the direction of private reading and original research, and the courses are varied from year to year so that they may be pursued by students through three or more successive years. The books needed by the graduate students are collected in the seminary library of the department. No undergraduates are admitted to graduate courses or to the seminary library, but the minor and major courses of the department amounting to ten hours a week may be elected by graduate students.

Seminary in Modern Painting.

Two hours a week throughout the year.

In addition to working with books and photographs the students will be required to make short day-trips to study pictures.

In 1914-15 the subject of the seminary will be the Barbizon School.

In 1915-16 the pre-Raphaelite movement and its outcome, the æsthetic movement, will be studied.

In 1916-17 the subject will be painting since 1875. Impressionism, post-Impressionism and the recent revolutionary movements will be considered and as a fair number of representative pictures are accessible in public or private collections the student will be expected to form an opinion of her own.

Mathematics.

The instruction in this department is under the direction of Dr. Charlotte Angas Scott, Professor of Mathematics, and Dr. James Ryals Conner, Associate and Associate Professor (elect) in Mathematics. The instruction offered in mathematics covers twenty-three and a half hours of lectures and recitations a week, in addition to the time devoted to the seminary work in the graduate department; it includes ten hours a week of undergraduate minor and major work, five hours a week of free elective work, four hours a week of post-major work open only to graduates and to undergraduates who have completed the major course in mathematics, and four and a half hours a week of graduate work.

In the major course the students are able to gain a fair knowledge of the principal subjects belonging to the department of pure mathematics. The points of contact of mathematics with other branches of mental and physical science are indicated as far as possible throughout the course, special attention being paid to the nature of mathematical reasoning, and to the true relation and mutual dependence of mathematics and physics. The course of lectures on the history of mathematics in the

second year is intended to give an outline of the development of the subject from its beginning to 1700 A.D.

The two hour course in trigonometry included in the first semester of the minor course in mathematics may be taken separately as a free elective or may be counted as a part of the year of mathematics which may be taken as an alternative for the second year of required science. It is required for admission to the major course in physics. An examination for advanced standing may be taken by those who do not wish to attend the course and yet wish to elect the minor course in mathematics or the major course in physics.

Preparatory Course.

FIRST YEAR.

(Minor Course.)

(Given in each year.)

1st Semester.

Analytical Conics, Dr. Scott.

Three hours a week.

Trigonometry, including Series, Dr. Scott.

Two hours a week.

The course in trigonometry may be taken separately as a free elective. The course in analytical conics may be taken separately by those students only who have passed the examination for advanced standing in trigonometry.

Major Course.

2nd Semester.

Elementary Differential and Integral Calculus, Dr. Conner.

Three hours a week.

Algebra and Theory of Equations, Dr. Conner.

Two hours a week.

The three hour and two hour courses in this semester may not be elected separately.

SECOND YEAR.

(Given in each year.)

1st Semester.

Differential and Integral Calculus and Differential Equations, Dr. Conner.

Three hours a week.

Theory of Equations, Determinants, Dr. Conner.

Two hours a week.

2nd Semester.

Curve Tracing, History of Mathematics, Dr. Scott.

Three hours a week.

Analytical Geometry of two and three Dimensions, Dr. Scott.

Two hours a week.

The three hour and two hour courses in each semester may not be elected separately.

Group: Mathematics with Greek, or with Latin, or with Philosophy, or with Psychology, or with Philosophy and Psychology, or with Physics, or with Chemistry, or with Geology, or with Biology.

FREE ELECTIVE COURSES.

Graphic Mathematics, Dr. Scott. *One hour a week throughout the year.*
(Given in 1913-14 and again in 1915-16.)

The course deals with statistical work, probability, and theory of errors. It is recommended to students of economics as well as to students of physics. No knowledge of mathematics beyond the requirements for matriculation is presupposed. This course may be counted as part of the five hours of elective or post-major mathematics which may be taken as an alternative for the second year of required science.

Fundamental Theorems of Algebra and Geometry, Dr. Scott.
One hour a week throughout the year.
(Given in 1914-15 and again in 1916-17.)

Certain standard problems of historical interest are considered in order to elucidate some of the fundamental principles of mathematics. Either semester may be taken separately. No knowledge of mathematics beyond the requirements for matriculation is presupposed. It is hoped that the work will prove useful not only to students electing mathematics as a major, but also to those intending to teach elementary mathematics. This course may be counted as part of the five hours of elective or post-major mathematics which may be taken as an alternative for the second year of required science.

Mathematics Preparatory to Science. *Two hours a week throughout the year.*
(Given in each year when the time of the department permits.)

This course deals chiefly with parts of the differential and integral calculus, trigonometry, analytical geometry, and differential equations. Some problems in probability are also considered. This course may be counted as part of the five hours of elective or post-major mathematics which may be taken as an alternative for the second year of required science.

Descriptive Astronomy, Dr. Conner. *Two hours a week throughout the year.*
(Given in 1913-14 and again in 1914-15.)

The subject is treated from an elementary point of view. Such advanced mathematics as seems desirable is developed in the lectures. This course may be counted as part of the five hours of elective or post-major mathematics which may be taken as an alternative for the second year of required science.

POST-MAJOR COURSES.

Post-Major Courses.

The post-major courses in mathematics are designed to bridge over the interval between the ordinary undergraduate studies and graduate work. As the amount of time given to mathematical studies differs in different colleges, graduate students frequently find it advisable to elect some of these courses. Regular written work is expected from all mathematical students, and a reading knowledge of French and German is presupposed.

The post-major courses in any one year amount to four hours a week. The courses given are the following, with occasional modifications.

I. (a.) Lectures introductory to Modern Analytical Geometry, in connection with Salmon's *Conic Sections* and Scott's *Modern Analytical Geometry*.

or I. (b.) Lectures on Modern Pure Geometry.

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or I. (c.) Lectures on Special Topics in Geometry, such as Homogeneous Coordinates, Circular Coordinates, Families of Curves, certain Transcendental Curves, Geometrical Transformations, etc.

Special permission to take the course I (c) before completing the two years of the major course may be granted to students whose work in the major course has shown that they are able to profit by the lectures.

II. (a.) Lectures Introductory to Modern Algebra, in connection with Salmon's *Modern Higher Algebra*, and Elliott's *Algebra of Quantics*.

or II. (b.) Lectures preparatory to the Theory of Functions, in connection with Harkness and Morley's *Introduction to the Theory of Analytic Functions* and Chrystal's *Algebra*, Vol. II.

or II. (c.) Lectures on Differential Equations, ordinary and partial.

or II. (d.) A general course in Analysis, dealing with the higher development of subjects only touched upon in the major course, such as Determinants, Fourier's Series, Infinite Series, Definite Integrals, etc.

or II. (e.) Elementary Theory of Numbers.

In 1913-14 the following post-major courses are offered:

I. (a.) Dr. Scott. *Two hours a week throughout the year.*
II. (b.) Dr. Conner. *Two hours a week throughout the year.*

In 1914-15 the following post-major courses are offered:

I. (c.) Dr. Scott. *Two hours a week throughout the year.*
II. (e.) Dr. Conner. *Two hours a week throughout the year.*

In 1915-16 the following post-major courses are offered:

I. (a.) Dr. Scott. *Two hours a week throughout the year.*
II. (d.) Dr. Conner. *Two hours a week throughout the year.*

GRADUATE COURSES.

Four and a half hours a week of seminary work and graduate lectures are offered each year to graduate students of mathematics accompanied by the direction of private reading and original research. The courses vary from year to year so that they may be pursued by candidates for the degree of Doctor of Philosophy for three or more successive years. The books needed by the graduate students are collected in the seminary library of the department. No undergraduates are admitted to graduate courses or to the seminary library, but the post-major courses of the department amounting to four hours a week may be elected by graduate students.

Theory of Surfaces, Dr. Scott. *Two hours a week throughout the year.*
(Given in 1913-14.)

In this course a general knowledge of plane algebraic curves and the elements of solid analytical geometry is presupposed. During the first semester the simpler properties of non-singular surfaces and projective properties of curves and developables are taken up; the properties of ruled surfaces and of surfaces in general are treated in the second semester.

Graduate Courses.

The Topology of Algebraic Curves, Dr. Scott.

*Two hours a week throughout the year.**(Given in 1914-15.)*

This course deals with the visible properties of plane algebraic curves, the number, nature and relation of the real components of singularities; the number, nature and arrangement of the distinct circuits; and also, though in less detail, with similar investigations relating to curves in space.

Geometrical Transformations, Dr. Scott. *Two hours a week throughout the year.**(Given in 1915-16.)*

During the first semester the work deals with Cremona transformations in a plane; the more general theory of geometrical transformations is taken up during the second semester.

Theory of Groups, Dr. Conner. *Two hours a week throughout the year.**(Given in 1913-14.)*

The theory of abstract finite groups is first developed. Permutation and substitution groups are taken up and applications to the theory of equations and to geometry discussed.

Differential Geometry, Dr. Conner. *Two hours a week throughout the year.**(Given in 1914-15.)*

An account of the classical theory of the infinitesimal properties of curves and surfaces will first be given. The modern development of the subject will then be studied and special attention will be paid to metrical notions.

Calculus of Variations, Dr. Conner. *Two hours a week throughout the year.**(Given in 1915-16.)*

The foundations of the subject will be laid with careful attention to mathematical rigour. Numerous problems chosen from a wide range of subjects will be proposed and investigated.

Mathematical Journal Club, Dr. Scott and Dr. Conner.

One hour a fortnight throughout the year.

The journal club holds fortnightly meetings at which reports on special topics or memoirs are presented by the instructors and the graduate students.

SCIENCE.

Physics, Chemistry, Geology, Biology.

Professors and instructors: Dr. Florence Bascom, Dr. William B. Huff, Dr. David Hilt Tennent, Dr. James Barnes,* Dr. Frederick Hutton Getman, Dr. Thomas Clachar Brown, Dr. Roger Frederick Brunel, Dr. Alfred Russell Moore, Dr. Annie Louise Macleod, Dr. Janet Tucker Howell (elect), Miss Mabel Frehafer, and Miss Mary Edith Pinney.

In January, 1893, the trustees opened Dalton Hall, a large building containing ample laboratories, lecture-rooms, research-rooms, special libraries, and professors' rooms for the work of the scientific departments. The physical, chemical, and biological laboratories are open to students from nine to six daily.

The attention of graduates of medical colleges and of undergraduate and graduate students intending to take the degree of

* Granted leave of absence for the year 1914-15.

Doctor of Medicine is called to the facilities offered by the laboratories, and to the resolutions of the Trustees of the Johns Hopkins University in regard to the admission of students to the Medical School of that University, which opened in the autumn of 1893, and has from the first admitted women on the same terms as men. The courses of Bryn Mawr College in physics, chemistry, and biology correspond to those of the Johns Hopkins University,* and it is easy for a student to elect a course corresponding exactly to the Preliminary Medical Course of the Johns Hopkins University. Students planning to begin the study of medicine should elect physics for one year and biology and chemistry for two years.

* REQUIREMENTS FOR ADMISSION TO THE MEDICAL DEPARTMENT OF THE JOHNS HOPKINS UNIVERSITY.

"As candidates for the degree of Doctor of Medicine the school receives:

1. Those who have satisfactorily completed the Chemical-Biological Course which leads to the A.B. degree in this University. (Group V.)
2. Graduates of approved Colleges or Scientific Schools who can furnish evidence: (a) That they have acquaintance with Latin and a reading knowledge of French and German; (b) That they have such knowledge of biology, chemistry and physics as may be obtained by a year's course in these subjects when accompanied by laboratory work. †
3. Those who give evidence by examination that they possess the general education implied by a degree in arts or in science from an approved college or scientific school and the knowledge of French, German, Latin, Physics, Chemistry, and Biology above indicated."

† BIOLOGY.—In addition to the usual class work, the instruction must include a year's laboratory course of six hours or more a week upon the structure, functions and life-histories of selected types of animal and plant life. Courses in botany or zoology will be accepted provided the laboratory work has been adequate. It is desirable that the course should include laboratory instruction in embryology.

CHEMISTRY.—The minimum requirement is a one year course, including five hours of laboratory work a week throughout the year, covering the outlines of inorganic chemistry and the elements of organic chemistry, somewhat as presented in Remsen's "Introduction to the Study of Chemistry." Students will be required to present evidence that in addition to these requirements they have had an elementary course in organic chemistry, including at least 25 to 30 lectures and 90 to 100 hours of laboratory work.

PHYSICS.—A collegiate course for at least one year is required. This must include four hours a week of class-room work and at least three hours a week of quantitative work in the laboratory. Special attention should be given to theoretical mechanics and to mechanical and electrical experiments.

LATIN.—The student should have studied Latin grammar and should possess at least such knowledge of the language as may be acquired by reading four books of Caesar or their equivalent.

Similar requirements are made for admission to the Medical College of Cornell University. The Woman's Medical College of Pennsylvania admits students of Bryn Mawr College who have pursued the chemical-biological course that leads to the A.B. or the Ph.D. degree to advanced standing in the corresponding branches of the college curriculum on presentation of evidence of work equivalent to that done in the Medical School and on passing the required examinations in these branches. The Woman's Medical College presented to Bryn Mawr College in 1910 a scholarship to be awarded to a graduate of the college giving free tuition and renewable for the four years of the college course.

must furnish proof that they have at some time pursued the studies included in the matriculation examination. They must satisfy the several instructors that they can profit by the courses that they desire to follow, and their admission to recitations, examinations, and laboratory exercises depends on the express consent of the instructor in charge. Hearers differ, moreover, from matriculated students in that they are not recognised by the College, and may receive only such certificates of collegiate study as may be given them by the several instructors. They may not receive degrees.

All candidates for the degree of Bachelor of Arts must elect their courses in accordance with the Group System, and an understanding of the principles of the system is necessary for an intelligent selection of courses.

In all departments as yet fully organised there is a course of five hours a week for two years, called a Major Course. Whenever one year of this course is of such a nature that it may be taken separately, it is designated as a Minor Course. Every candidate for a degree is required to take two such major courses as shall be homogeneous, or shall complete each other, and major courses which fulfil this condition are designated as Groups. The object of this system is to enable the student to acquire the foundations of a specialist's knowledge; and the Required Courses, namely, English (two years), philosophy, science, (two years, or, if a second year of science be not elected, history, or economics and politics, or philosophy, or psychology, or mathematics), are intended in part to supplement the Group, and in part to insure a more liberal training than could be obtained if every student combined elective studies at pleasure.

The required two years' course in English serves as a general introduction to the study of language and comparative literature. The required two years in science (or the substitute permitted of one year's course in science and one year's course in history, economics and politics, philosophy, or psychology, or mathematics), permit the student of chemistry and biology to pursue advanced courses in one or both of these branches, or to take a major course in physics; and they give for one year at least to the student of history and literature the same kind of

*The
Group
System.*

*Major
Course.*

*Required
Courses.*