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THE
UNIVERSITY OF WISCONSIN
CATALOGUE

1915-1916



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May, 1916

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THE ACADEMIC YEAR 1916-1917

1916

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|----------------|---------------|----------------------------------|
| Sept. 18-19-20 | Mon.-Tu.-Wed. | Registration days. |
| Sept. 18-19 | Mon.-Tu. | Examinations for admission. |
| Sept. 21 | Thursday | Lectures and recitations begin. |
| Nov. 30 | Thursday | Thanksgiving Day: legal holiday. |
| Dec. 21 | Thurs. (Noon) | Christmas recess begins. |

1917

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|----------------|------------------------|---------------------------------------|
| Jan. 9 | Tues. (8 a. m.) | Exercises resumed. |
| Jan. 29-Feb. 7 | Mon.-Wed. | Final examinations, first semester. |
| Feb. 8-9 | Thur.-Fri. | Registration days. |
| Feb. 12 | Monday | Lectures and recitations begin. |
| Feb. 22 | Thursday | Washington's birthday: legal holiday. |
| April 11-17 | Wed.-Tues. (Inclusive) | Spring recess. |
| May 30 | Wednesday | Memorial Day: legal holiday. |
| June 9-15 | Sat.-Fri. | Final examinations, second semester. |
| June 14-15 | Thur.-Fri. | Examinations for admission. |
| June 17-20 | Sun.-Wed. | Commencement week. |

THE UNIVE

ORGANIZATION AND

Charles R. Van H
W. D. Hiestand,
H. J. Thorkels
Building.
M. E. McCaffrey,
Building.
G. L. Gilbert, Bu
Lois K. Mathews,

The College of Letter

E. A. Birge, I
F. W. Roe, A

THE SCHOOL OF M

C. H. Mills, I

THE COURSE IN C

Louis Kahlenl

THE COURSE IN C

W. A. Scott, I

THE COURSE IN JC

W. G. Bleyer,

THE LIBRARY SCH

M. S. Dudgeo

THE COURSE IN P1

Edward Krem

THE DEPARTMENT

G. W. Ehler,

THE COURSE FOR

V. A. C. He

Hall.

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112. **The Teaching and Supervision of Manual Arts.** Yr.; 2 cr. Open to seniors and adult specials. The manual and industrial arts in regular and special schools. Mr. Crawshaw.

115. **Manual Arts Seminary.** Yr.: 1 cr. A study of the larger problems of manual training and vocational education. Mr. Crawshaw.

MATHEMATICS

PROFESSORS SLICHTER (chairman), VAN VLECK; ASSOCIATE PROFESSORS DOWLING, SKINNER; ASSISTANT PROFESSORS BURGESS, DRESDEN, HART, MARCH, WOLFF; INSTRUCTORS ALLEN, CLEMENTS, FRY, KEFFER, PAINE, SIMPSON, TAYLOR; ASSISTANT WOOD. FELLOW, MR. HOLLCROFT.

The courses in mathematics are divided into three groups, as follows:

A. Courses 1 to 8 are planned to give a working knowledge of elementary mathematics. All courses are elective except courses 1 and 7, required of students in the Course in Commerce.

Students who elect the minimum amount of mathematics in fulfillment of requirement "c" (see requirement for degree of Bachelor of Arts), may choose six hours from any of the first eight courses, provided courses 3 and 4 are not both chosen.

Students electing mathematics with a view to teaching the subject in the high schools are referred to the section on mathematics in the course for the training of teachers. Course 5 is strongly recommended in preparation for teaching.

It will be advantageous for all students expecting to elect mathematics to present at least one and one-half units of algebra for entrance.

B. Courses 111 to 125 are designed for students who desire to continue mathematical study, and who have completed the requisite courses in group A.

C. Courses 241 to 269 are intended primarily for graduate students.

Major and Minor in Mathematics

The requirements for an undergraduate major in mathematics consist of a thesis, courses 5 and 6, and a minimum of 11 credits

M

from courses for undergraduates and graduate students in courses 112 or 113. The requirements for mathematics as a minor subject in the Course for the Training of Teachers are on page 253.

For Undergraduate

1. **Algebra.** I or II; 3 cr. For students entering the College. Prerequisite to all other courses in algebra. Mr. Skinner, Miss Allen, Mr. Clements, Mr. Simpson.

2. **Trigonometry.** I or II; 3 cr. Plane trigonometry. Prerequisite to all other courses in trigonometry. Mr. Dowling, Mr. Skinner, Miss Allen, Mr. Simpson.

3. **Analytic Geometry.** II; 3 cr. Representing one and one-half units of algebra and one-half unit of geometry. Mr. Dresden.

4. **Analytic Geometry.** Yr.; 2 cr. Plane analytic geometry. Mr. Van Vleck.

5. **Calculus.** Yr.; 3 cr. Students who elect calculus or who desire calculus for application in other departments are advised to take course 5 in the sophomore year. It may be taken simultaneously by students who elect trigonometry. Mr. Dowling, Mr. Van Vleck.

6. **Determinants and Analytic Geometry.** I; 3 cr. Prerequisite: course 5.

7. **Commercial Algebra.** I or II; 3 cr. For students in the Course in Commerce. Miss Allen, Mr. Simpson, Mr. Hollcroft.

8. **Solid Geometry.** I; 3 cr. Mr. Hart.

10. **The Teaching of Mathematics.** Yr.; 3 cr. For students who are preparing to teach mathematics as a minor subject. Mr. Hart.

11. **The Content of Secondary Mathematics.** Yr.; 3 cr. For students entering the Training of Teachers. Mr. Hart.

100. **Thesis Course.** 2 cr. 1915-16.

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MATHEMATICS

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VOLFF; INSTRUCTORS ALLEN, CLEMENTS,
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courses are designed for students who desire to
study, and who have completed the re-

These are intended primarily for graduate

Minor in Mathematics

An undergraduate major in mathematics
requires 5 and 6, and a minimum of 11 credits

from courses for undergraduates and graduates, inclusive of course
112 or 113. The requirements for mathematics as a major or
minor subject in the Course for the Training of Teachers are given
on page 253.

For Undergraduates

1. **Algebra.** I or II; 3 cr. For students presenting one unit of
algebra for entrance. Prerequisite to all other courses except 2 and 8.
Mr. Skinner, Miss Allen, Mr. Clements, Mr. Dresden, Mr. Hollcroft,
Mr. Simpson.

2. **Trigonometry.** I or II; 3 cr. Plane trigonometry and log-
arithms. Prerequisite to all other courses except 1, 7, 8, and 124.
Mr. Dowling, Mr. Skinner, Miss Allen, Mr. Clements, Mr. Dresden,
Mr. Simpson.

3. **Analytic Geometry.** II; 3 cr. Recommended to students
presenting one and one-half units of algebra for admission and who
have taken or are taking course 2. Mr. Dowling, Miss Allen, Mr.
Dresden.

4. **Analytic Geometry.** Yr.; 2 cr. Prerequisite: course 2. Mr.
Clements, Mr. Van Vleck.

5. **Calculus.** Yr.; 3 cr. Students who intend to specialize in
mathematics or who desire calculus for applications in science are
advised to take course 5 in the sophomore year. Course 4 must be
taken simultaneously by students who have not had analytic
geometry. Mr. Dowling, Mr. Van Vleck.

6. **Determinants and Analytic Geometry of Three Di-
mensions.** I; 3 cr. Prerequisite: course 3 or 4. Mr. Dresden.

7. **Commercial Algebra.** I or II; 3 cr. Required of students in
the Course in Commerce. Miss Allen, Mr. Clements, Mr. Dresden,
Mr. Hollcroft, Mr. Simpson.

8. **Solid Geometry.** I; 3 cr. Mr. Hart, Mr. Simpson.

10. **The Teaching of Mathematics.** I or II; 2 cr. Open to
seniors who are preparing to teach mathematics either as major or
minor subject. Mr. Hart.

11. **The Content of Secondary Mathematics.** II; 2 cr. Ad-
mission to course restricted to students enrolled in the Course for
the Training of Teachers. Mr. Hart.

100. **Thesis Course.** 2 cr. 1915-16. Mr. Van Vleck.

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For Undergraduates, College of Engineering

50. **Sub-freshman Algebra.** I; no cr. For students who fail to pass the examination given to all engineering freshmen for admission to course 51. Mr. Fry, Mr. Paine.

51. **Elementary Mathematical Analysis.** I or II; 5 cr. Required of freshmen in engineering. Mr. Slichter, Mr. Simpson, Mr. Fry, Mr. Keffer, Mr. March, Mr. Paine, Mr. Wolff, Mr. Taylor.

52. **Elementary Mathematical Analysis.** I or II; 5 cr. A continuation of 51. Required of freshmen in engineering. Mr. Slichter, Mr. Simpson, Mr. Fry, Mr. Keffer, Mr. March, Mr. Paine, Mr. Wolff, Mr. Taylor.

*53. **Elementary Mathematical Analysis.** I; 5 cr. A special course in the technical parts of 51 and 52 for students who have had trigonometry and analytic geometry. Mr. Burgess.

54. **Differential and Integral Calculus.** I or II; 4 cr; For all courses. Required of all sophomores in engineering. Mr. Slichter, Mr. March, Mr. Wolff, Mr. Paine.

55. **Calculus.** I or II; 4 cr. Continuation of 54; for all courses. Elementary work in differential equations. Required of sophomores in engineering. Mr. Slichter, Mr. Wolff, Mr. March, Mr. Fry, Mr. Paine, Mr. Keffer, Mr. Taylor.

110. **Higher Mathematics.** Yr.; 3 cr. [Differential Equations. Definite Integrals, Fourier Series, and other subjects. Electives for juniors, seniors, and graduate students. Mr. Wolff.

For Undergraduates, College of Agriculture

71. **Mathematics for Agricultural Students.** I or II; 5 cr. Mr. Wolff, Mr. Fry, Mr. Keffer, Mr. Wood.

For Undergraduates and Graduates

Course 5 is prerequisite to all courses in this group except 115, 124, and 125.

111. **Advanced Calculus.** I; 3 cr. Mr. Skinner.

112. **Differential Equations.** II; 3 cr. With applications to geometry and mechanics. Primarily a working course for students in mathematics and physics. Mr. Van Vleck.

*On account of the large amount of special work in courses 51 and 52, a special course is organized for students who have had trigonometry, and analytic geometry in colleges of pure science.

113. **Theoretical Mechanics.** Yr.; 3 cr. those who have had analytic geometry and ca
115. **Projective Geometry.** Yr.; 2 cr. Mr. Dowling.

125. **Theory of Equations and Intro Algebra.** II; 3 cr. Mr. Dresden.

114. **Modern Analytic Geometry.** II years. (Omitted 1915-16.)

119. **Differential Geometry.** II; 3 cr. The application of the differential calculus twisted curves and surfaces.

116. **Introduction to Higher Mathem:** course for students majoring in physics. Prer (Omitted 1915-16.) Mr. March.

117. **Vector Analysis.** II; 3 cr. Applic geometry. (Omitted 1915-16.)

118. **Theory of Probabilities and Meth** II; 2 cr. For students of science and econom

120. **Theory of Analytic Functions.** 3 years. (Omitted 1915-16.) Mr. Van Vleck.

121. **Theory of Functions of a Real Va** alternate years. Critical study of infinite Dresden.

124. **Theory of Life Insurance.** Yr. course 7 or its equivalent. Mr. Dowling.

For Graduates

These courses are varied from year to year ac of the students, other subjects being introd those here announced.

241. **Elliptic Functions.** Yr.; 2 cr. Mr. Dowling.

243. **Modern Theory of Differential E** (Omitted 1915-16.) Mr. Van Vleck.

244. **Higher Geometry.** Yr.; 3 cr. In al ted 1915-16.) Mr. Dowling.

250. **Theoretical Hydrodynamics.** 1916-17.) Mr. Slichter.

251. **Theory of Potential.** Yr.; 3 cr. 1 Skinner.

263. **Higher Algebra.** I; 3 cr. (On Skinner.

266. **Theory of Numbers.** Yr.; 3 cr. 3

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College of Engineering

113. Theoretical Mechanics. Yr.; 3 cr. May be taken by those who have had analytic geometry and calculus. Mr. Slichter.

115. Projective Geometry. Yr.; 2 cr. Synthetic treatment. Mr. Dowling.

125. Theory of Equations and Introduction to Higher Algebra. II; 3 cr. Mr. Dresden.

114. Modern Analytic Geometry. II; 3 cr. In alternate years. (Omitted 1915-16.)

119. Differential Geometry. II; 3 cr. In alternate years. The application of the differential calculus to the geometry of twisted curves and surfaces.

116. Introduction to Higher Mathematics. Yr.; 3 cr. A course for students majoring in physics. Prerequisite: Course 112. (Omitted 1915-16.) Mr. March.

117. Vector Analysis. II; 3 cr. Applications to physics and geometry. (Omitted 1915-16.)

118. Theory of Probabilities and Method of Least Squares. II; 2 cr. For students of science and economics. Mr. Slichter.

120. Theory of Analytic Functions. Yr.; 3 cr. In alternate years. (Omitted 1915-16.) Mr. Van Vleck.

121. Theory of Functions of a Real Variable. Yr.; 3 cr. In alternate years. Critical study of infinitesimal analysis. Mr. Dresden.

124. Theory of Life Insurance. Yr.; 2 cr. Prerequisite: course 7 or its equivalent. Mr. Dowling.

For Graduates

These courses are varied from year to year according to the needs of the students, other subjects being introduced in addition to those here announced.

241. Elliptic Functions. Yr.; 2 cr. In alternate years. Mr. Dowling.

243. Modern Theory of Differential Equations. Yr.; 3 cr. (Omitted 1915-16.) Mr. Van Vleck.

244. Higher Geometry. Yr.; 3 cr. In alternate years. (Omitted 1915-16.) Mr. Dowling.

250. Theoretical Hydrodynamics. Yr.; 3 cr. (Omitted 1916-17.) Mr. Slichter.

251. Theory of Potential. Yr.; 3 cr. Mr. Slichter.

263. Higher Algebra. I; 3 cr. (Omitted 1915-16.) Mr. Skinner.

266. Theory of Numbers. Yr.; 3 cr. Mr. Skinner.

College of Agriculture

Agricultural Students. 1 or II; 5 cr. Mr. Wood.

Undergraduates and Graduates

All courses in this group except 115.

113. I; 3 cr. Mr. Skinner.

115. II; 3 cr. With applications to primarily a working course for students Mr. Van Vleck.

116. I; 3 cr. Mr. Slichter.

117. I; 3 cr. Mr. Slichter.

118. I; 3 cr. Mr. Slichter.

119. I; 3 cr. Mr. Slichter.

120. I; 3 cr. Mr. Slichter.

121. I; 3 cr. Mr. Slichter.

122. I; 3 cr. Mr. Slichter.

123. I; 3 cr. Mr. Slichter.

124. I; 3 cr. Mr. Slichter.

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268. **Partial Differential Equations.** Yr.; 3 cr. Introductory course with applications to physical problems. Mr. March.
269. **Integral Equations.** Yr.; 3 cr. Mr. Van Vleck.

Mathematical Club—For instructors, graduates, and seniors making mathematics their major. Twice monthly. The object of the club will be to follow important recent developments in mathematics.

METEOROLOGY

MR. ERIC R. MILLER, of the U. S. Weather Bureau.

Courses 1 and 2 are intended to afford a general survey of atmospheric processes and their effects upon life on the earth. Courses 103 and 106 are planned to prepare students of agriculture, commerce, engineering, journalism, medicine, physical geography, etc., for the treatment of meteorological and climatological questions of importance in their professions, and to fit students for the investigation of special problems in meteorology. Further opportunity to pursue original research under supervision will be provided if desired.

For Undergraduates

1. **Weather and Climate.** I; 2 cr. Mr. Miller.
2. **Climate and Man.** II; 2 cr. Mr. Miller.

For Undergraduates and Graduates

103. **Meteorology.** I; 3 cr. Prerequisites: Mathematics 111 and 112, and Physics 2, or equivalents. Mr. Miller.
106. **Climatology.** II; 3 cr. Prerequisites: Geology 109, 113, and Political Economy 130, or equivalents. Mr. Miller.

MUSIC

Emeritus PROFESSOR PARKER; PROFESSOR MILLS (chairman); ASSISTANT PROFESSORS BERGMAN, CHAMBERLAIN, CONLON, EASTMANN, SANDERS, SAUGSTAD, TOWNSEND

The courses in music, except course 1a, are open to all students, freshmen excepted, in the University who show sufficient musical ability to profit, and receive the same credit as similar courses in other departments of the University, except where otherwise stated in the following explanatory statement.

Course 1a is open to election in the first year for the degree of Bachelor of Arts, in a total of fourteen hours, but does not count as part of the degree.

Students may be admitted to advance examination, and upon the recommendation of the School of Music, but without credit toward the degree, unless specified under course 81.

See the statement of the School of Music.

For Undergraduates

- 1a. **Elementary Harmony.** Yr.; 2 cr. Prerequisite: Music 1.
1. **Harmony.** Yr.; 3 cr. Prerequisite: Music 1a.
11. **Harmony.** Yr.; 2 cr. Prerequisite: Music 1.
21. **Counterpoint.** Yr.; 2 cr. Prerequisite: Music 11.
31. **History.** Yr.; 2 cr. Lectures on the history of music.
41. **Methods.** Public School Music.
42. **Practice.** Public School Music.

* By the term applied music is meant instruction in the performance of some instrument.