GRADUATE COURSES

The following courses are available to those preparing for degree language examinations or for improvement in reading ability:

FREN505 (merges FREN501, parts of FREN502) (5)
Reading French
For students without a working knowledge in French; an introduction to the grammar and syntax of French for the purpose of translating written French into English. May count toward a general elective only.

GRMN505 (merges GRMN501, parts of GRMN502) (5)
Reading German
For students without a working knowledge in German; an introduction to the grammar and syntax of German for the purpose of translating written German into English. May count toward a general elective only.

INLS575 (1-3)
Topics in ________
A study of selected topics in language, literature, or civilization. Topics and credits to be announced. Repeatable with different topics.

INLS590 (1-3)
Directed Study/Reading/Research/Project
Studies in the area of French/Spanish language, literature, or civilization, as determined in consultation with the instructor.

MATHMATICS

Haughey Hall, Room 121
(616) 471-3423
math-info@andrews.edu
http://www.andrews.edu/MATH/

Faculty
Chair
Kenneth L. Franz
Ronald D. Johnson
Donald H. Rhoads
Lynelle M. Weldon

Lecturers
Aurora P. Burdick
Keith G. Calkins

Academic Programs Credits
BS: Mathematics Education 30
BS: Mathematics 39
Applied Mathematics
Preparation for Secondary School Mathematics Teaching
Preparation for Graduate Study in Mathematics
Minor in Mathematics 20

Students planning to major in math will be more competitive in their eventual job search if they major in more than one area. Good combinations are (1) math-physics, (2) math-engineering, (3) math-computer science, or (4) math-accounting.

SPECIAL REQUIREMENTS AND PLACEMENT TEST

Sequential Course Numbering. All courses with more than one course number must be taken sequentially.

Non-overlapping Credit Requirement. Because there is substantial overlap in material covered in the following groups of courses, no student is granted credit (other than general elective credit) in more than one course from each group:
1. MATH141, 182 (Calculus)
2. MATH215, 281 (Linear Algebra)

Mathematics Departmental Placement Examination (MPE). Any student wishing to enroll in any mathematics or statistics course must have achieved appropriate scores on the MPE of this department, or have prerequisite course(s) accepted for credit. The minimum score on the MPE is indicated as the prerequisite for each course.

Graduate Programs

The Mathematics Department collaborates in the Master of Science: Interdisciplinary Studies (Mathematics and Physical Sciences). See the Interdisciplinary Studies section, p. 96.

Courses (Credits)
See inside front cover for symbol code.

MATH105 (2)
Mathematical Skills—Arithmetic
Designed to remedy the deficiencies, diagnosed by the Mathematics Placement Examination, in arithmetic skills, unit conversions, and problem solving. Does not apply toward any General Education requirement. Fall, Spring

MATH106 (3)
Mathematical Skills—Algebra
Remediation in algebraic skills. At the end of this course, the Mathematics Placement Examination is retaken. Outcome determines eligibility for entrance into certain first-level mathematics courses. Does not apply toward any General Education requirements. Prerequisite: MPE 1.0. Fall, Spring

MATH141, 182 (Calculus)
Real functions and relations, differentiation and applications. Prerequisite: MPE 4.0. Fall

MATH142, 281 (Calculus)
Continuation of Calculus I; Integration of function; Series. Prerequisite: MATH141. Spring

MATH165 (1.5 or 3)
College Algebra
A study of linear equations and inequalities; algebraic, logarithmic, exponential, and trigonometric functions; polynomials and complex numbers. Includes applications in business and science. Prerequisite: MPE of 2.0. Fall, Spring
MATH165  
College Algebra  
Distance education — see content above.

MATH168  (4)  
(merges MATH162, part of MATH165)  
Algebra with Trigonometry  
A study of linear equations and inequalities; algebraic, logarithmic, and exponential functions; polynomials and complex numbers. Includes trigonometric functions and identities. Primarily for Technology students. Prerequisite: MPE 2.0, and one year of high-school geometry. Fall

MATH182  (3)  
Calculus with Applications  
Introduction to calculus of functions of one variable, including finding maxima and minima; partial derivatives; applications to problems in business and the social sciences. Prerequisite: MATH165. Spring

MATH215  (3)  
Applied Linear Algebra  
Vectors, matrices, determinants, and eigen values, with emphasis on applications. Credit may not be earned in this course and in MATH281. Prerequisites: MATH182 or 141. Spring

MATH240  (4)  
(was part of MATH283)  
Calculus III  
Curves and surfaces, directional derivatives, multiple integrals, line and surface integrals, integral theorems. Prerequisites: MATH142. Fall

MATH281  (3)  
Linear Algebra  
Vector spaces, linear mappings, solution of sets of linear equations, bilinear and quadratic mappings. Prerequisite: MATH141 or consent of instructor. Spring

MATH286  (3)  
(was part of MATH282)  
Differential Equations  
Elementary differential equations, first order equations, higher order linear equations, systems. Prerequisites: MATH142. Spring

MATH355  (3)  
Discrete Mathematics  
Selected topics in discrete mathematics, such as logic, set theory, relations, functions, algebraic structures and graph theory. Prerequisite: MATH141 or 182. Fall

MATH405  (3)  
(merges parts of MATH401, 402)  
Applied Mathematics  
Function transforms applied to differential equations. Trigonometric series. Prerequisite: MATH240. Fall

MATH408  (3)  
Complex Analysis  
Elementary complex analysis, contour integrals, complex series Prerequisite: MATH240. Spring

MATH425  (3)  
Numerical Methods and Modeling  
Construction of mathematical models. Implementing such models on a computer. Prerequisites: MATH141 or 281, or 215; and a knowledge of computer programming. Spring

B. Geometry  
MATH540 Alt (2-3)  
Topics in Mathematics  
Consult with the instructor in regard to the topic to be covered. Prerequisite: Consent of the instructor. Repeatable to 6 credits.

C. Analysis  
MATH530 (2-3)  
Topics in Teaching Mathematics  
A. Algebra
B. Geometry
C. Analysis
D. Applications
Consult with department chair regarding availability in any given year. Repeatable to 6 credits.

D. Applications  
MATH540 Alt (2-3)  
Topics in Mathematics  
Consult with the instructor in regard to the topic to be covered. Prerequisite: Consent of the instructor. Repeatable to 6 credits.