

MATH- EMATICS

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

Faculty

Theodore R. Hatcher, *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	45
BS: Mathematics Applied Mathematics Preparation for Secondary School Mathematics Teaching Preparation for Graduate Study in Mathematics	60
Minor in Mathematics	30

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.

Undergraduate Programs

BS: Mathematics Education—45

MATH171,172,173, 281, 282, 283, COSC125, STAT251, and at least 13 credits in additional courses chosen in consultation with a departmental adviser from MATH271, 355, 401, 402, 421, 427, 431, 432, 441, 442, 471, 472, 487, 495, COSC436, STAT286, 455.

This major is available only to those students seeking elementary or secondary certification.

BS: Mathematics—60

MATH171,172,173, 281, 282, 283, COSC125, STAT251, and at least 28 credits in additional courses chosen in consultation with a departmental adviser from MATH271, 355, 401, 402, 421, 427, 431, 432, 441, 442, 471, 472, 487, 495, COSC436, STAT286, 455.

Minor in Mathematics—30

MATH171,172,173, 281 and at least 14 credits in additional courses chosen in consultation with a departmental adviser from MATH271, 282, 283, 355, 401, 402, 421, 427, 431, 441, 471, 472, 487, 495, COSC125, 436, STAT251, 286, 455.

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. MATH163, 171, 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. 85.

Courses

(Credits)

See inside back cover for symbol code.

MATH105 (3)

Mathematical Skills—Arithmetic

Emphasis on arithmetic skills, unit conversions, and problem solving. Does not apply toward any General Education requirement.

MATH106 (4)

Advanced Calculus

Introduction to topology; theorems on continuity, differentiation, integration, and convergence; introduction to differentiable manifolds. Prerequisite: MATH421.

MATH441, 442 Alt G (4,4)

Algebra

Study of groups, rings, fields, modules, vector spaces, and algebras. Prerequisites: MATH281, 355.

MATH471, 472 Alt G (8)

Geometry

Intuitive background and outline of axiomatic development of Euclidean, non-Euclidean, affine, and projective spaces. Relation of these topics to secondary teaching. Prerequisite: MATH173.

MATH487 Alt (variable)

Special Topics in Mathematics

Consult the instructor in regard to the topic to be covered. Prerequisite: Consent of teacher.

MATH495 (1-4)

Independent Study

Enables students to pursue topics in mathematics not offered in other scheduled courses. Ordinarily a minimum of 4 hours of study per week is expected for each credit. Grades are assigned on the basis of a procedure such as oral or written exams or reports selected by a faculty supervisor.

STATISTICS

STAT251 (4)

Probability Theory with Statistical Applications

Concepts of probability for students desiring a deeper understanding of the principles underlying statistical methods. Definitions of probability random variables, probability distributions, estimators, and statistical decision theory. Prerequisite: MATH163, 171, or 182.

STAT285 (4)

Elementary Statistics

A study of basic descriptive and inferential statistics, including elementary probability and probability distributions, statistical inference involving the binomial, normal, and t distributions, and hypothesis testing. Prerequisite: MPE 2.0. Does not apply to a mathematics major or minor.

STAT285 V (6 qtr; 4 sem)

Elementary Statistics

Distance education—see content above.

STAT286 (4)

Statistical Methods

An introduction to multiple regression, analysis of variance, and non-parametric methods. Prerequisite: STAT251 or 285.

STAT455 (4)

Analysis of Variance

Tests of hypotheses concerning 2 or more popula-

