

General Elective

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

FREN505 (5)

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 (5)

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)

A study of selected topics in language, literature, or civilization. Topics and credits to be announced. Repeatable with different topics.

INLS590 (1–3)

Studies in the area of French/Spanish language, literature, or civilization, as determined in consultation with the instructor.



Haughey Hall, Room 121
(269) 471-3423
math@andrews.edu
<http://www.math.andrews.edu>

Faculty

Robert C. Moore, *Chair*
Shandelle M. Henson
Joon Hyuk Kang
Yun Myung Oh
Lynelle M. Weldon

Lecturers

Keith G. Calkins
Shirleen Luttrell

Emeriti

Kenneth L. Franz
Theodore R. Hatcher
Donald H. Rhoads
Edward J. Specht

Academic Programs	Credits
BS: Mathematics	39
Applied Mathematics	
Preparation for Secondary School Mathematics	
Teaching	
Preparation for Graduate Study in Mathematics	
BS: Mathematics Education	30
Major in Mathematical Studies	30
Minor in Mathematics	20
Minor in Mathematics Education	20
Minor in Mathematics of Economics and Finance	20

Mathematics is foundational to physics, engineering, and computer science, and is increasingly important in many fields of study such as finance, accounting, economics, biology, medicine, and environmental science. Students majoring in these and other fields will find that acquiring an additional major in mathematics or mathematical studies greatly enhances the marketability of their degree.

Undergraduate Programs

BS: Mathematics—39

MATH141, 142, 215, 240, 286, 315, 355; STAT340 and at least 12 credits in additional courses chosen in consultation with a Mathematics Department advisor from MATH271, 389, 405, 408, 426, 431, 432, 441, 442, 475, 487, 495, CPTR436. Students in a teacher certification program are required to take MATH475. A major field test in mathematics is required during the senior year.

Cognate Course: CPTR125

Major in Mathematical Studies—30

MATH141, 142, 215, 240 and at least 15 credits in additional courses chosen in consultation with a Mathematics Department advisor from STAT340, CPTR125, MATH271, 286, 315, 355, 389, 405, 408, 426, 431, 432, 441, 442, 475, 487, 495, CPTR436.

A major field test in mathematics is required during the senior year.

additional course chosen in consultation with a Mathematics Department advisor from MATH286, 426. This major is available only to those who are obtaining elementary or secondary teacher certification. A major field test in mathematics is required during the senior year.

Cognate Course: CPTR125

Minor in Mathematics Education—20

MATH145, 167, 182, 215, 220, 355, STAT285. This minor is available only to those obtaining elementary teacher certification. The regular minor listed above will also suffice for elementary certification.

Minor in Mathematics of Economics and Finance—20

MATH141, 142, 215, 286, STAT285. 340. This minor is available only to students obtaining a degree in the School of Business.

Behavioral Neuroscience

The Department of Mathematics is a participant in the Behavioral Neuroscience program funded by the National Science Foundation. For more details, see p. 109.

ematics courses for 3 years after it is earned.

Graduate Programs

MS: Mathematics and Science

The Department of Mathematics collaborates with the Departments of Biology, Chemistry, and Physics in this degree. See Mathematics and Science, p. 154.

Endorsement: Middle School Mathematics

The Department of Mathematics collaborates with the School of Education and the Berrien County Intermediate School District to administer the Alternative Certification Experimental Program (Math Endorsement Program) for Middle School Educators. Applications to this Program are initially screened by the School of Education and the Department of Mathematics, and then go through the regular Andrews admissions process. Courses are listed below under "Mathematics Education." Inquiries should be directed to Larry Burton (269) 471-3465, burton@andrews.edu; Lynelle Weldon (269) 471-3866, weldon@andrews.edu; or Judy Wheeler (269) 471-7725 ext. 302, jwheele@remc11.k12.mi.us.

C e (Credits)
See inside front cover for symbol code.

De e e a C e
MATH091 and MATH092 are provided for students not achieving a score of at least P2 on the Mathematics Placement Examination (MPE).

Students complete the sequence MATH091/092 by passing a set of proficiency tests in arithmetic and algebra, at which time a P2

S e c a R J æ e e . T e M P E c e a d a a e e e f a

MATH141, 142 is a standard introduction to single-variable calculus. MATH141 includes limits, continuity, derivatives, applications, and integration up through substitution. Formal definitions of limit, derivative, and Riemann integral. Proofs

of standard theorems, including the Fundamental Theorem of Calculus. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE=P5 or MATH167 or MATH168 with grade no lower than C. *Fall, Spring*

MATH142 (4)

Continuation of MATH141. Riemann sums, Riemann integral, Fundamental Theorem of Calculus, techniques of integration, improper integrals, applications, sequences, series, and tests of convergence. Prerequisite: MATH141. *Fall, Spring*

MATH145 (3)

Logic, sets; functions given by tables, formulas, graphs; inverse functions; linear, quadratic, exponential and trigonometric functions; rates of change and applications to science and business. Additional topics may be selected by the instructor. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE \geq P2. *Fall, Spring*

MATH165 V (3)

AU/GU course. A study of linear equations and inequalities; algebraic, logarithmic, and exponential functions; polynomials and complex numbers. Includes applications in business and science. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE \geq P2.

MATH166 (3)

Equations and inequalities; systems of linear equations; algebraic, polynomial, rational, exponential, and logarithmic functions; inverse functions, complex numbers, applications, and selected topics. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE \geq P2. *Fall, Spring*

MATH167 Alt (2)

Trigonometric functions and their inverses, identities, trigonometric equations; laws of sines and cosines, vectors, applications, and selected topics. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE \geq P3 or MATH166 or MATH145. *Fall*

MATH168 (4)

Covers most of the content of MATH166 and MATH167. Equations and inequalities; systems of linear equations; algebraic, polynomial, rational, exponential, and logarithmic functions; inverse functions, complex numbers, trigonometric functions and their inverses, identities, trigonometric equations, laws of sines and cosines, vectors, applications, and selected topics. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE \geq P2. *Fall, Spring*

MATH168 V (4)

AU/GU course—see content above. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE \geq P2.

MATH182 Alt (3)

of the role of proof in geometry. The pedagogy of this course models that of effective middle school mathematics teachers.

MAED522 (2)

This course is the second of two which lead prospective mathematics teachers through a series of explorations to develop competence in geometric reasoning, including conjecturing, proving, and disproving. Prospective teachers refine their understanding of the role of proof in geometry. The pedagogy of the course models that of effective middle school mathematics teachers.

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MAED600 (2)

Students investigate concepts of number theory, discrete mathematics, and logic as they apply to middle grades mathematical education. Each topic includes a study of graphic representation of concepts and applications in technology. The pedagogy of the course models that of effective middle school mathematics teachers.

MAED610 (4)

Investigation of concepts and practices of mathematical modeling with an emphasis on application to middle grades education. The pedagogy of the course models that of effective middle school mathematics teachers.

MAED625 (2)

Participants investigate topics in mathematics, including probability, programming, fractals, and chaos theory. Emphasis is placed on participant understanding of these topics and their appropriate use as investigations with middle grades students. The pedagogy of the course models that of effective middle school mathematics teachers.

MAED 630 (1-4)

Seminar in specific topics relevant to mathematics education. Each seminar examines one topic in detail. Repeatable with different topics. May be graded S/U.