

Mathematics Courses

(MATH)

Contact:

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MATHEMATICS (MATH)

MATH 542

Applied Statistics 3 u

This course will cover the basics of statistical testing, regression analysis, experimental design, analysis of variance, the use of computers to analyze statistical problems.

Prerequisite: MATH 253 or MATH 250 or consent of instructor.

MATH 552

Infinite Processes for the Elementary Teacher 3 u

This course is primarily for pre-service elementary and middle school teachers. Students will be introduced to the concepts of calculus, which include infinite processes, limits, and continuity. In addition, derivatives and integrals, and their relationship to area and change will be covered.

Prerequisite: MATH 152

MATH 555

Matrices and Linear Algebra 3 u

Systems of linear equations, vector spaces, linear dependence, bases, dimension, linear mappings, matrices, determinants, quadratic forms, orthogonal reduction to diagonal form, eigenvalues, geometric applications.

Prerequisite: MATH 253 or MATH 250, MATH 254 or concurrent registration or consent of instructor.

MATH 570

Problem Solving for the Elementary Teacher 3 u

This course is primarily for pre-service elementary and middle school teachers. Students will learn a variety of problem solving strategies applicable in elementary and middle school. The applications will cover many different areas of mathematics.

Prerequisite: MATH 149

MATH 575

Development of Mathematics 3 u

A study of the development of mathematical notation and ideas from prehistoric times to the present, periods and topics will be chosen corresponding to the backgrounds and interests of the students.

Prerequisite: Consent of instructor.

MATH 615

Modern Algebra and Number Theory for the Elementary Teacher 3 u

An introduction to modern algebra with special emphasis on the number systems and algorithms which underlie the mathematics curriculum of the elementary school. Topics include sets, rings, integral domains, rational numbers, real numbers, complex numbers and polynomials. Students may not receive credit for both MATH 615 and MATH 652.

Prerequisite: MATH 149 and MATH 152

MATH 616

Geometry for the Elementary Teacher 3 u

A study of the intuitive, informal geometry of sets of points in space. Topics include elementary constructions, coordinates and graphs, tessellations, transformations, problem solving, and symmetries of polygons and polyhedra and use of geometry computer software.

Prerequisite: MATH 149 and MATH 152

MATH 621

Mathematics for High School Teachers I 3 u

The course revisits the high school curriculum from an advanced perspective. The focus is on deepening understanding of concepts, highlighting connections and solving challenging problems. The mathematical content includes number systems, functions, equations, integers, and polynomials. Connections to geometry are emphasized throughout the course.

Prerequisite: Math 280, Math 301, and at least an additional 3 credits in upper level math

MATH 622

Mathematics for High School Teachers II 3 u

The course continues the explorations of the high school curriculum from an advanced perspective that was started in Math 421. The focus is on deepening understanding of concepts, highlighting connections and solving challenging problems. The mathematical content includes congruence, distance, similarity, trigonometry, area, and volume. Connections to algebra are emphasized throughout the course.

Prerequisite: Math 353 and Math 421

MATH 641

Probability Theory 3 u

Probability spaces, discrete and continuous random variables, mathematical expectation, discrete and continuous distributions.

Prerequisite: MATH 255 or MATH 280 or consent of instructor.

MATH 653

Abstract Algebra 3 u

This course is a continuation of MATH 452/652 with emphasis on ring and field theory. Topics include a review of group theory, polynomial rings, divisibility in integral domains, vector spaces, extension fields, algebraic extension fields, etc.

Prerequisite: MATH 555 and MATH 652.

MATH 690

Workshop 1-3 u

MATH 694

Seminar 2 u

MATH 696

Special Studies 1-3 u

Prerequisite: Consent of instructor.

MATH 790

Workshop 1-6 u

MATH 794

Seminar 1-3 u

MATH 796

Special Studies 1-3 u

MATH 798

Individual Studies 1-3 u

In addition to allowing students to carry on independent studies in a wide variety of graduate level topics, students may take many of the department's upper level undergraduate courses supplemented with graduate components. These courses include advanced calculus, complex variables, differential equations, abstract algebra, number theory, probability, statistics, and more.

MATH 799

Thesis Research 1-6 u

Students must complete a Thesis Proposal Form in the Graduate Studies Office before registering for this course.