Mathematical and Computer Sciences Courses
(MATH, COMPSCI)

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.
Prereq: MATH 253 or MATH 250 or consent of instructor.
Unreq: ECON 245

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.
Prereq: 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.
Prereq: MATH 254 or concurrent registration.

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.
Prereq: 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, with special emphasis being placed on elementary mathematics through the calculus. The development and historic background of the new math will be included.

Prereq: 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.

Prereq: 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.

Prereq: MATH 149 and MATH 152

MATH 631

Topology 3 u

An introduction to point-set topology, including such topics as topological spaces, mappings, connectedness, compactness, separation axioms, metric spaces, complete spaces, product paces and function spaces.

Prereq: MATH 255 and either MATH 280 or consent of instructor.

MATH 641

Probability Theory 3 u

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

Prereq: MATH 255 or consent of instructor.

MATH 642

Mathematical Statistics 3 u

This course will cover moment generating functions, moment of linear combinations of random variables, conditional expectation, functions of random variables, sampling distributions, the theory of estimation, Bayesian estimation, hypothesis testing, nonparametric tests, and linear models.

Prereq: MATH 441/641 and either MATH 355/555 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.
Prereq: MATH 355/555 and MATH 452/652.

MATH 659

Partial Differential Equations 3 u

Fourier analysis, partial differential equations and boundary value problems, complex variables, and its potential theory.
Prereq: MATH 361

MATH 664

Advanced Calculus 3 u

This course presents a rigorous treatment of the differential and integral calculus of single variable functions, convergence theory of numerical sequences and series, uniform convergence theory of sequences and series of functions, metric spaces, function of several real variables, and the inverse function theorem. This course contains a written component.
Prereq: MATH 301

MATH 671

Numerical Analysis 3 u

Emphasis on numerical algebra. The problems of linear systems, matrix inversion, the complete and special eigenvalue problems, solutions by exact and iterative methods, orthogonalization, gradient methods. Consideration of stability and elementary error analysis. Extensive use of microcomputers and programs using a high level language such as PASCAL.
Prereq: MATH 171 and MATH 355/555

MATH 690

Workshop 1-3 u

MATH 694

Seminar 2 u

MATH 696

Special Studies 1-3 u
Prereq: Consent of instructor.

MATH 790

Workshop 1-6 u

MATH 794

Seminar 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.

COMPUTER SCIENCE (COMPSCI)

COMPSCI 690

Workshop 1-3 u

Repeatable.

Prereq: Consent of instructor.

COMPSCI 694

Seminar 2 u

COMPSCI 696

Special Studies 1-3 u

Repeatable.

Prereq: Consent of instructor.

COMPSCI 790

Workshop 1-3 u

COMPSCI 794

Seminar 1-3 u

COMPSCI 798

Individual Studies 1-3 u