

FACULTY

DEAN

Lanny C. Morley, PhD

GRADUATE FACULTY

Jay Belanger, PhD
Robert Cacioppo, PhD
Kevin Easley, PhD
John V. Erhart, PhD
Martin J. Erickson, PhD
Suren Fernando, PhD
James Guffey, PhD
Todd Hammond, PhD
Eric J. Howard, PhD
Ronald A. Knight, PhD
Susan LaGrassa, PhD
Samuel Lesseig, MS
Lanny C. Morley, PhD
Steve Smith, PhD
Shingmin Wang, PhD

MASTER OF ARTS IN MATHEMATICS

The Master of Arts in Mathematics degree program has been placed on inactive status. Graduate mathematics courses from the following list will be offered on a limited basis for students in the Master of Arts in Education—Mathematics program.

COURSE DESCRIPTIONS

Students who do not meet prerequisites for a course can request permission to take a course by meeting with the faculty member teaching the course, who in turn will recommend to the Dean that the student be enrolled in the class if appropriate.

MATHEMATICS

MATH 502G – Topics in Mathematics Education: Technology
3 hours

The use of technology in teaching high school mathematics. Emphasis on curricular issues, assessment, and methods of instruction.

MATH 503G – Topics in Mathematics
3 hours

Selected topics in mathematics. May be repeated for credit up to six hours.

MATH 511G – Numerical Analysis
3 hours

The propagation of errors in computing, solution of linear systems of equations, solution of nonlinear equations, approximation of functions, numerical quadrature, numerical solution of ordinary differential equations. Prerequisite: MATH 300.

MATH 515G – Complex Variables I
3 hours

An introduction to complex variables including sequences, series, analytic functions, Cauchy's Theorems, residues, poles, conformal mapping, and analytic continuation. Prerequisite: MATH 461.

MATH 521G – Partial Differential Equations
3 hours

Theory and application of quasi-linear and linear equations of first order, series solutions, Cauchy-Kovalesky theorem, characteristics, canonical form, principle of superposition, equations of mathematical physics: the Laplace, wave, and heat equations, methods of solutions. Prerequisites: MATH 365 and MATH 515G.

MATH 530G – Topics in Mathematical Modeling
3 hours

Selected topics in mathematical modeling. Prerequisites: MATH 365 and MATH 461.

MATH 561G – Mathematical Analysis I
3 hours

Point set topology, limits, continuity, derivatives, functions of bounded variation, rectifiable curves, infinite series, infinite products, Riemann-Stieltjes integral, and sequences of functions. Prerequisite: MATH 461.

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MATHEMATICS
AND
COMPUTER
SCIENCE

MATHEMATICS
AND
COMPUTER
SCIENCE

MATH 562G – Mathematical Analysis II

3 hours

Multivariable differential calculus, implicit functions, extrema, multiple Riemann integrals, Lebesgue integrals, Fourier series and Fourier integrals, and multiple Lebesgue integrals. Prerequisite: MATH 561G.

MATH 564G – Advanced Linear Algebra

3 hours

Vector spaces, linear transformations, linear functionals, eigenvalues, reduced forms of systems of equations, selected application of linear algebra. Prerequisite: MATH 357.

MATH 603G – Topics in Algebra

3 hours

Selected topics in algebra. May be repeated for credit up to 6 hours.

MATH 604G – Topics in Geometry

3 hours

Selected topics in geometry. May be repeated for credit up to 6 hours.

MATH 605G – Topics in Analysis

3 hours

Selected topics in analysis. May be repeated for credit up to 6 hours.

MATH 608G – Management of Instruction

2 hours

Prerequisite: Admission to MAE.

MATH 621G – Theory of Ordinary Differential Equations

3 hours

A survey of existence theorems, uniqueness theorems, qualitative properties, and stability. Prerequisites: MATH 365 and MATH 461.

MATH 631G – Advanced Topics in Mathematical Modeling

3 hours

Selected advanced topics in mathematical modeling. Prerequisites: MATH 530G and consent of instructor.

MATH 632G – Principles of Applied Mathematics I

3 hours

Hilbert space theory, operator theory, and integral equations. Prerequisites: MATH 357, MATH 365, and MATH 461.

MATH 633G – Principles of Applied Mathematics II

3 hours

Green's functions, generalized functions, boundary value problems, spectral theory of second-order differential equations. Prerequisite: MATH 632G.

MATH 635G – Advanced Numerical Analysis

3 hours

Numerical solution of systems of ordinary differential equations, numerical solution of partial differential equations, convergence and stability analysis. Prerequisite: MATH 511G.

MATH 640G – Topology I

3 hours

Point set topology concepts: includes cardinality, closure, compactness, connectedness, continuity, homeomorphism, metric space, separation, sequence, subspace, and selected topics. Prerequisite: MATH 461.

MATH 641G – Topology II

3 hours

Tychonoff Theorem, Urysohn's Lemma and Metrization Theorem, Stone-Cech Compactification, Nagata-Smirnov Metrization Theorem, complete metric spaces, pointwise and compact convergence, compact-open topology, Ascoli's Theorem, and selected topics. Prerequisite: MATH 640G.

MATH 666G – Abstract Algebra I

3 hours

A study of groups, rings, integral domains, and fields. Prerequisite: MATH 367.

MATH 667G – Abstract Algebra II

3 hours

A study of field extensions including Galois Theory; selected topics from rings, groups, or modules. Prerequisite: MATH 666G.

MATH 671G – Real Variables I

3 hours

The theory of functions of a real variable. Prerequisites: MATH 561G and MATH 562G.

MATH 672G – Real Variables II

3 hours

General measure and integration theory. Prerequisite: MATH 671G.

MATH 676G – Complex Variables II

3 hours

A continuation of MATH 515G. Prerequisite: MATH 515G.

STATISTICS

STAT 570G – Mathematical Probability and Statistics I

3 hours

Mathematical development of discrete and continuous distributions, expected values, moments, and measures of dispersion. Prerequisite: STAT 290.

STAT 571G – Mathematical Probability and Statistics II

3 hours

Large and small sampling theory, correction analysis, test of hypotheses, and other aspects of statistical inference. Prerequisite: STAT 570G.