

MATHEMATICS COURSES (MATH)**MATH 6003 Dynamical Systems and Applications**

Topics include linear dynamical systems and stability of linear systems, generation of dynamical systems by systems of ODE, local theory of dynamical systems, bifurcation theory, and applications.

Prerequisite: MATH 3303 or MATH 2654

MATH 6043 Topics in Number Theory

Topics include divisibility, congruences, Quadratic reciprocity and Quadratic forms, number theory functions, Diophantine equations, Farey fractions and irrational numbers, continued fractions, primes and multiplicative number theory, and the Partition Function.

Prerequisite: MATH 3414 or equivalent

MATH 6103 Discrete Optimization

Topics include discrete optimization problems, simplex algorithms, complexity, matching and weighted matching, spanning trees, matroid theory, integer linear programming, approximation algorithms, branch-and-bound, and local search and polyhedral theory.

Prerequisite: MATH 2853, MATH 4483

MATH 6203 Applied Probability

Topics include probability counting methods, discrete and continuous random variables and their distributions, expected value, sampling distributions, Central Limit Theorem, and normal approximation to the binomial.

Prerequisite: MATH 1634, MATH 2063 or an equivalent

MATH 6213 Statistical Methods

Topics include estimation, confidence intervals, hypothesis tests, nonparametric tests, analysis of variance, and regression.

Prerequisite: MATH 2853

MATH 6213 Statistical Methods

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Prerequisite: MATH 2853

This course will include the following topics: estimation, confidence intervals, hypothesis tests, nonparametric tests, analysis of variance, and regression.

MATH 6233 Geometry

Topics include preliminaries, affine and projective planes, affine and projective planes over fields, affine and projective spaces, and closure spaces.

Prerequisite: MATH 3003

MATH 6253 Mathematical Analysis I

Topics include the Real and Complex number systems, basic topological properties, numerical sequences and series, continuity of functions, the Riemann-Stieltjes Integral, sequences and series of functions, and the Lebesgue Theory.

Prerequisite: MATH 3003

MATH 6263 Mathematical Analysis II

Topics include metric spaces, topological spaces, compact spaces, Banach spaces, measure and integration, measure and outer measure, the Daniell Integral, and measure and topology.

Prerequisite: MATH 6253

MATH 6303 Introduction to Mathematical Control Theory

Topics include discrete-time and continuous-time systems, reachability and controllability, feedback and stabilization, and outputs.

Prerequisite: MATH 2654, MATH 2853

MATH 6363 Theory of Partial Differential Equations

Topics include well-posed problems, regularity, asymptotics, maximum principles, linear equations, nonlinear first order equations, linear evolution equations, and second order elliptic equations.

Prerequisite: MATH 3303, MATH 3243

MATH 6403 Signal Processing

Topics include Fourier Transforms, Fourier series, Fast Fourier Transforms FFT, filtering, sampling, and digital signal processing.

Prerequisite: MATH 3243

MATH 6413 Advanced Modern Algebra I

Topics include introduction to groups, subgroups, quotient group and homomorphisms, group actions, direct and semidirect products and Abelian groups, and further topics in Group Theory.

Prerequisite: MATH 3413 or equivalent

MATH 6423 Advanced Modern Algebra II

Topics include introduction to rings, Euclidean domains, principle ideal domains and unique factorization domains, polynomial rings, field theory, and Galois Theory.

Prerequisite: MATH 6413 or equivalent

MATH 6473 Combinatorial Analysis

Topics include algorithms and complexity, polya theory, combinatorial designs and Latin squares, coding theory, and network optimization.

MATH 6483 Theory of Graphs

Topics include fundamentals, matchings, connectivity, Planar graphs, dense graphs, and Graph Ramsey Theory.

Prerequisite: MATH 3003

MATH 6503 Numerical Methods in Applied Mathematics

Topics include norms, floating-point arithmetic and rounding errors, well-posed computations, numerical linear algebra, iterative solutions of nonlinear equations, polynomial interpolation, and numerical differentiations and integration.

Prerequisite: MATH 2853, MATH 3303

MATH 6513 Applied Linear Algebra

Topics include linear equations solving, error analysis and accuracy, linear least square problems, non-symmetric eigenvalue problems, symmetric eigenvalue problems and singular value decomposition, and iterative methods for linear systems.

Prerequisite: MATH 2853

MATH 6613 Inverse Problems

Topics include basic facts from Functional Analysis, ill-posed problems, regularization of the first kind, regularization by discretization, and inverse eigenvalue problems.

Prerequisite: MATH 6253

MATH 6713 Strategies for Teaching Mathematics

This course is designed to enable the learner to develop skills in teaching and planning for mathematics instruction at the secondary level. Special emphasis will be given to preparing teachers to teach in a performance-based curriculum.

MATH 6723 Assessment and Classroom Management in Mathematics Education

This course is designed to enable the learner to develop skills in assessment and evaluation as well classroom management in the secondary-level mathematics classroom. Special emphasis will be given to the preparation and assessment of performance-based tasks.

MATH 6733 Research in Mathematics Education

This course is designed to enable the learner to review, analyze, and interpret available research in mathematics education with emphasis on the application of research to the secondary mathematics classroom.

MATH 6743 Advanced Perspective on Secondary Mathematics

Topics include features of an advanced perspective, Real and Complex numbers, functions, equations, integers and polynomials, and number system structures.

Prerequisite: MATH 3243 and MATH 3413 or the equivalent

MATH 6903 BioMathematics

Topics include model building in development of experimental science, mathematical theories and models for growth of one-species and two or more species systems, mathematical treatment of differential equations in models stressing qualitative and graphical aspects, difference equation models, and scrutiny of biological concepts.

Prerequisite: MATH 2853, MATH 3303, reasonable background in Biology

Nursing—M.S.N.**Department of Nursing**

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Professors, K. Grams (Chair), L. Ware (Graduate Coordinator), C. Epps (Undergraduate Coordinator), M. Kosowski, R. Siler, C. Wilson; **Associate Professors**, L. Reilly; **Assistant Professors**, S. Ashford, N. Chadwick

The Department of Nursing at the University of West Georgia offers a Master of Science in Nursing degree with role options in either education or health systems leadership and a post-masters certificate program in education and health systems leadership. The nursing education track is a program of study that addresses innovations in curriculum, instructional skills and strategies, the