THE UNIVERSITY OF RHODE ISLAND
COLLEGE OF ARTS AND SCIENCES

THINK BIG WE DO℠

Mathematics Graduate Degree Requirements
Fall 2014

Core Courses for Mathematics Graduate Degrees

It is suggested that incoming graduate students take the follow core graduate classes. The program of a particular graduate student is set in accord with his/her major professor.

MTH-435/436	Introduction to Mathematical Analysis I/II
MTH-418	Matrix Analysis
MTH-513	Linear Algebra
MTH-515/516	Algebra I/II
MTH-525	Topology (cannot apply both MTH-425 and -525 toward the MS Degree)
MTH-535/536	Measure Theory and Integration
MTH-629/630	Functional Analysis I/II

In addition, depending on the student's research interests and concentration the department offers advanced graduate classes focused on introduction as well as on recent research in particular areas:

Difference Equations (DE)

MTH-442	Introduction to Difference Equations
MTH-542	Difference Equations I **new course**
MTH-543	Difference Equations II **new course**
MTH-545	Ordinary Differential Equations I
MTH-546	Ordinary Differential Equations II
Difference Equations Seminar	

Combinatorics and Discrete Mathematics (CB)

MTH-547/CSC-547	Combinatorics and Graph Theory
MTH-548/CSC-548	Topics in Combinatorics: Graph Theory
MTH-550	Probability and Stochastic Processes
MTH-625	Algebraic Topology **new course**
MTH-656	Probability on Discrete Structures **new course**
Special Topics include: Extremal Graph Theory, Ramsey Theory, Representations of Graphs, Algebraic Combinatorics	
Combinatorics Seminar	

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Students can also take graduate classes in related areas:

CSC-541	Advanced Topics in Algorithms
CSC-542	Mathematical Analysis of Algorithms
CSC-544	Theory of Computation
IME-555	Deterministic Systems Optimization

Complex Dynamical Systems (DS)

MTH-455	Introduction to Chaotic Dynamical Systems (was MTH-445)
MTH-462	Function of a Complex Variable
MTH-555	Chaotic Dynamical Systems **new course** (Cannot apply both MTH-455 and MTH-555 toward the MS Degree)
MTH-562	Complex Function Theory (Cannot apply both MTH-462 and MTH-562 toward the MS Degree)
MTH-662	Topics in Complex Analysis **new course**

Numerical PDE and Numerical Linear Algebra (NA)

MTH-441	Introduction to Partial Differential Equations
MTH-471	Introduction to Numerical Analysis
MTH-472	Numerical Linear Algebra
MTH-571	Numerical Analysis **new course** (Cannot apply both MTH-471 and MTH-571 toward the MS Degree)
MTH-572	Numerical Partial Differential Equations
MTH-672	Scientific Computation **new course**

Applied Analysis, Optimization and Control (AO)

MTH-545	Ordinary Differential Equations I
MTH-546	Ordinary Differential Equations II
MTH-550	Probability and Stochastic Processes
MTH-551	Mathematical Statistics

Students can also take graduate classes in related areas:

ELE-504	Optimal Control Theory
ELE-506	Digital Signal Processing
IME-555	Deterministic Systems Optimization