2018-2019 Undergraduate and Graduate Academic Catalog

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Mathematics, M.S.

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The degree of Master of Science with a major in mathematics is designed to advance the student's knowledge of applied mathematics, pure mathematics, and statistics, and to introduce the student to independent study and research. Completion should enable the student to pursue a more advanced degree, teach mathematics at the secondary or college level, or use mathematical techniques in a scientific or industrial environment.

Prerequisites

The admission decision for a prospective student will be based on the Graduate Record Examination scores, the student's record in undergraduate mathematics or statistics, and letters of recommendation. At least nine semesters hours beyond calculus, with courses in advanced calculus and linear algebra when possible, should be included in the undergraduate program.

Course Requirements

The M.S. has thesis and non-thesis tracks.

Thesis Track:

The thesis track requires twenty-four semester hours of course work and the preparation of a thesis (for which six hours credit is given). A minimum of twelve semester hours in mathematics courses above the 400(G)-level are required.

Non-thesis Track:

The non-thesis track requires thirty-six semester hours of graduate course work, of which a minimum of eighteen hours must be above the 400(G)-level. The student may concentrate in applied mathematics by taking courses in differential equations, numerical analysis, and statistics or in pure mathematics by taking courses in algebra, analysis, and topology.

Required Courses

Information about specific required courses can be obtained from the department's graduate coordinator. All programs of study must be approved in advance by the coordinator.

In either track, a student must complete at least one of the two-semester sequences:

- MATH 535 – Topology I **3 Credit(s).**
- MATH 536 – Topology II **3 Credit(s).**

- MATH 537 – Algebraic Topology I **3 Credit(s).**
- MATH 538 – Algebraic Topology II **3 Credit(s).**

- MATH 555 – Numerical Analysis I **3 Credit(s).**
- MATH 556 – Numerical Analysis II **3 Credit(s).**

- MATH 561 – Linear Algebra and Applications I **3 Credit(s).**
- MATH 562 – Linear Algebra and Applications II **3 Credit(s).**

- MATH 565 – Abstract Algebra I **3 Credit(s).**
- MATH 566 – Abstract Algebra II **3 Credit(s).**

- MATH 573 – Real and Functional Analysis I **3 Credit(s).**
- MATH 574 – Real and Functional Analysis II **3 Credit(s).**

- MATH 575 – Complex Analysis I **3 Credit(s).**
- MATH 576 – Complex Analysis II **3 Credit(s).**

- MATH 583 – Ordinary Differential Equations I **3 Credit(s).**
- MATH 584 – Ordinary Differential Equations II **3 Credit(s).**

- MATH 595 – Partial Differential Equations I **3 Credit(s).**
- MATH 596 – Partial Differential Equations II **3 Credit(s).**

- STAT 521 – Applied Regression Analysis and Experimental Design **3 Credit(s).**
- STAT 522 – Experimental Design **3 Credit(s).**

- STAT 523 – Mathematical Statistics I **3 Credit(s).**
- STAT 524 – Mathematical Statistics II **3 Credit(s).**

- STAT 530 – Linear Models **3 Credit(s).**
- STAT 535 – Applied Multivariate Analysis **3 Credit(s).**

Other Requirements

Candidates must pass a comprehensive examination covering the student's course work and also basic topics from certain standard areas such as advanced calculus and linear algebra. The examination may be partly written and partly oral; when a thesis is written, part of the oral portion of the examination is a defense of the thesis.

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