M.S. in Mathematics

Requirements

The Master of Science degrees are offered under Plan A (Thesis) and Plan B (Non-thesis). Of the required thirty (30) credit minimum, at least eighteen (18) credits of 500-level course work must be taken under either plan.

Available under Plan B is a comprehensive master's degree in either mathematics or statistics. Although no thesis is required in this plan, a sound knowledge of several areas of mathematics and/or statistics is expected. Also available under Plan B is a master's degree in mathematics with an option in mathematics education. This option is designed primarily for secondary teachers and is offered as a combination of on-line academic year course work and summer sessions. The mathematics education option requires completion of a program portfolio through a series of seminars.

For further information, refer to the For Master's Students section. Students are expected to be familiar with both the Department and the Graduate School degree requirements.

Program Guidelines

The Master of Science degree in mathematics at Montana State University is designed to prepare students for further graduate work or for employment in academic, industrial, business, or government forums. Upon entrance, each student meets with the department's Graduate Program Committee to discuss career objectives and first year course work. During the second semester in the program each student forms a Graduate Committee and together, they outline the student's degree program. The prerequisites for the master's degree program in mathematics consist of the following courses or their equivalent: Linear Algebra (M 333), Introduction to Analysis I (M 383)-Introduction to Analysis II (M 384). Students who have not completed these courses or their equivalent may still enter the master's program but it is suggested that these courses then be taken.

* Both non-thesis and thesis plans are offered for the M.S. in Mathematics – Mathematics Option degree:

Non-Thesis Plan

This plan requires both completing the course work and passing the written comprehensive exam. At least 30 credits of course work are required. Of these, at least 18 credits must be numbered 500 or higher. Regardless, all of the following core courses must be completed:

- M 503 Advanced Linear Algebra 3
- M 504 Abstract Algebra 3
- M 505 Principles of Mathematical Analysis 3
- M 511 General Topology 3

Additionally, students must fulfill a breadth requirement by completing at least two of the following:

- M 441 Numerical Linear Algebra & Optimization
- M 450 Applied Mathematics I
- M 454 Introduction of Dynamical Systems I
- STAT 421 Probability Theory

* Either or both of these two required courses may be replaced by the corresponding semester of the appropriate 500 level course:
  - M 581 Numerical Solution of Partial Differential Equations I
  - M 560 Methods of Applied Mathematics I
  - M 595 Dynamical Systems I
  - STAT 501 Intermediate Probability and Statistics

Requirements for the written comprehensive exam are listed separately below.

Thesis Plan

This plan requires completing the course work, writing a thesis, and an oral defense of the thesis. At least 30 credits must be completed of which 10 must be thesis credits. Students must also complete both the core and breadth course requirements described in the Non-Thesis Plan above. Any exceptions to the course requirements must be approved by the student's graduate committee and adhere to the minimum policy requirements set forth in the Graduate Catalog (Plan B). Thesis and oral defense requirements must be arranged with and approved by the student's graduate committee.

M.S. in Mathematics Comprehensive Exam

The M.S. comprehensive exam for mathematics is a written exam administered in two disjoint 3-hour components, one on Analysis (M 505) and one on Linear Algebra (M 503). Each component is graded as pass or fail. To pass the comprehensive exam a student must pass both components within two examination periods.

The examinations are typically given in August and January with the specific dates and times for each component determined by the department. Typically, the students take the exams in August before their third semester of study.

If the student fails one or more components in the first examination period, a failure will be reported to The Graduate School. The student must then pass the remaining required components in a second examination period. If the student has not passed the remaining required components after the second examination period, a second failure of the comprehensive exam will be reported to The Graduate School and the student will be dismissed from the program.

For more information, refer to the Department of Mathematical Sciences (http://www.math.montana.edu).
Font Notice
This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Times was used instead of Adobe Garamond Pro.

The editor may contact Leepfrog for a draft with the correct fonts in place.