MATHEMATICS M.S.

All students must meet the Requirements for the Master’s Degree

OVERVIEW

The Department of Mathematics and Statistics offers programs towards the Master of Science (the Mathematics M.S. degree). Students are encouraged to take courses in both core mathematics and applied mathematics, thereby gaining an appreciation of the connections between theory and applications. Each student declares a major subject, which may be algebra, analysis, applied mathematics, or discrete mathematics. Within this major, the student may pursue either course work or a thesis.

Opportunities for research arise from the research interests of the Department faculty, which include analysis, algebra, biomathematics, combinatorics, complex systems, computational social science, differential equations, fluid mechanics, graph theory, mathematics education, modeling, network science, and number theory.

See the Department of Mathematics and Statistics website for further details. The department also offers the Ph.D. in Mathematical Sciences.

SPECIFIC REQUIREMENTS

Requirements for Admission to Graduate Studies for the Degree of Master of Science

Because of the breadth of pure and applied mathematics, it is recognized that applicants for admission will have diverse backgrounds. Admission requirements are therefore flexible. Applicants should have demonstrated strength in either core or applied mathematics, a bachelor’s degree with a major in mathematics or a closely related discipline, and satisfactory scores on the general section of the Graduate Record Examination.

Minimum Degree Requirements for the Degree of Master of Science

Each student must complete one of the following options:

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<th>Option A (Thesis):</th>
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<td>Twenty-four semester hours of acceptable graduate credits in advanced mathematics courses; and six semester hours of thesis research culminating in a master’s thesis.</td>
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<th>Option B (Non-thesis):</th>
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<td>Thirty semester hours of acceptable graduate credits in advanced mathematics courses. No thesis required.</td>
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Both Options:

Under either option, students must take, or acquire the knowledge of the content in, the courses MATH 331 and MATH 333, and must satisfactorily complete at least four 300-level mathematics courses and the seminar MATH 382.

In both options, students must select a major concentration from among the following areas: Analysis, Algebra, Applied Mathematics, or Discrete Mathematics. The concentration shall consist of at least nine approved credits in advanced mathematics courses in the respective area, three of which must be at the 300-level; students writing a thesis may count the six hours of thesis credit toward these nine hours.

With approval of the student’s advisor, up to six credits of courses outside mathematics may be used to fulfill the major, minor, or degree requirements.

Comprehensive Examination

The comprehensive examination must be taken no later than five weeks before the end of the semester preceding the conferral of the degree. It is an oral examination covering three topics in the case of a student pursuing the non-thesis option, and covering two topics in the case of a student pursuing the thesis option. The first topic for all students is real analysis, including functions of several real variables, measure theory and integration theory. The second topic for all students is complex analysis. In the case of a student pursuing the non-thesis option, the third topic is the student’s major subject, including material from three courses related to that subject that have been approved by the student’s examination committee. The details of the examination are decided upon by each student’s examination committee and will be discussed with the student in advance of the exam.

Requirements for Advancement to Candidacy for the Degree of Master of Science

The requirements for advancement to candidacy are the completion of any prerequisites noted when the student was admitted.