Loyola's Master of Science in Mathematics degree is a highly customizable program supporting students with a variety of career goals. Beyond delivering foundational knowledge in the discipline, its focus on critical-thinking, organizational, technological, and communication skills leaves students well-prepared for their next step.

**Curriculum**

The Master of Science in Mathematics requires 27 credit hours of coursework, a 1 credit professional development seminar during the first semester, and a 2 credit practicum during the final semester, for a total of 30 credit hours.

Coursework includes required foundational courses in algebra, analysis, and statistics, as well as 18 credit hours of electives chosen from courses in Mathematics and cognate fields (such as Applied Statistics, Data Science, and Computer Science). With their practicum, students design and independently execute a research project under faculty supervision.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 416</td>
<td>Survey of Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 454</td>
<td>Survey of Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 404 / STAT 404</td>
<td>Probability &amp; Statistics I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or STAT 408 Applied Regression Analysis</td>
<td></td>
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</tbody>
</table>

**Depth Requirement Courses**

*Select one of the following:*

- MATH 414 Algebra II
- MATH 415 Topics in Linear Algebra
- MATH 452 Analysis II
- MATH 453 Complex Analysis

*Select one of the following:*

- MATH 405 / STAT 405 Probability & Statistics II
- STAT 410 Categorical Data Analysis
- COMP 429 Natural Language Processing
- COMP 487 Deep Learning
- DSCI 401 Introduction to Data Science

*Or Another Course with Graduate Program Director Approval*

**Additional Requirements**

- MATH 401 Introduction to Graduate Study in Mathematics 1
- MATH 495 Graduate Practicum in Mathematics 2
- Select four approved 400-level Electives in Mathematics or Statistics 12

**Total Hours** 30

1. Students who select MATH 404/STAT 404 in Foundational Courses may opt to take STAT 408 as a Depth Course, and vice versa.

2. Approved elective courses should be selected with advice of Graduate Program Director to complement student’s previous learning and support future plans.

**STEM Designation**

The MS in Mathematics has been granted a STEM designation from the U.S. Department of Homeland Security. International students completing degrees with this designation can qualify for extended OPT (Optional Practical Training), bringing the total OPT time granted to 36 months.

**Graduate & Professional Standards and Regulations**

Students in graduate and professional programs can find their Academic Policies in Graduate and Professional Academic Standards and Regulations (https://catalog.luc.edu/graduate-professional-academic-standards-regulations/) under their school. Any additional University Policies supercede school policies.

**Learning Outcomes**

Graduates of the Master of Science in Mathematics Program will:

- be able to construct mathematical proofs of basic theorems, and to write these proofs clearly using correct grammatical constructs and appropriate mathematical notation;
- have seen applications of mathematics to areas across mathematical disciplines and outside of mathematical disciplines;
- receive the training sufficient for acceptance into PhD programs or professional schools, or for hire in mathematics related industries;
- receive training on how to act responsibly and ethically within the discipline.