MA in Statistics

Degree Requirements

The master's degree offers two tracks of study: regular track and applied track. The general requirements for receiving a master's degree are at least 30 semester hours of course work at the 7000 level or higher, of which at least 18 hours must be from the Department of Statistics at MU.

Regular Track

At least 15 semester hours of course work at the 8000 level or above must be taken from the Department of Statistics at MU. The 15 semester hours cannot include more than a total of three hours of STAT 8090.

Courses recommended but not required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 7110</td>
<td>Statistical Software and Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7310</td>
<td>Sampling Techniques</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7410</td>
<td>Biostatistics and Clinical Trials</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7420</td>
<td>Applied Survival Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7610</td>
<td>Applied Spatial Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7830</td>
<td>Categorical Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7850</td>
<td>Introduction to Stochastic Processes</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7870</td>
<td>Time Series Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8310</td>
<td>Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8320</td>
<td>Data Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8370</td>
<td>Statistical Consulting</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8410</td>
<td>Statistical Theory of Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8640</td>
<td>Bayesian Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 9250</td>
<td>Statistical Computation and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>STAT 9310</td>
<td>Theory of Linear Models</td>
<td>3</td>
</tr>
<tr>
<td>STAT 9410</td>
<td>Survival Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 7700</td>
<td>Advanced Calculus of One Real Variable I</td>
<td>3</td>
</tr>
<tr>
<td>CMP_SC 1050</td>
<td>Algorithm Design and Programming I</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses that cannot be used to fulfill the 30 hours for the master's

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>STAT 7020</td>
<td>Statistical Methods in the Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7050</td>
<td>Connecting Statistics to Middle and Secondary Schools</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7510</td>
<td>Applied Statistical Models I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7520</td>
<td>Applied Statistical Models II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7530</td>
<td>Analysis of Variance</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7710</td>
<td>Introduction to Mathematical Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8090</td>
<td>Master's Thesis Research in Statistics</td>
<td>1-99</td>
</tr>
</tbody>
</table>

Remedial Courses

The following courses are required if equivalent courses were not taken as an undergraduate: MATH 7140, STAT 8710 and STAT 8720. These courses may not be used for more than six of the required 30 hours.

Original Written Work

All candidates must submit a written report on an independent effort toward producing original work. This report may, with the advisor's consent, take the form of a thesis, a written review on a set of papers in statistics, or a written report on an independent study project, which may include an original application of statistics. For this work, a student must register for at least three semester hours of STAT 8090.

Presenting the Work

All candidates are required to present an open seminar on the results of the written report. The report should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

Examination

The MA examination covers material presented in the written report and the seminar and may also cover course work.

Applied Track

Students must complete the following six courses or equivalent. In addition, students must take four elective courses, at least three of which must be selected from the Department of Statistics course offerings numbered 8000 or above.

Required Core Courses

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</thead>
<tbody>
<tr>
<td>STAT 7110</td>
<td>Statistical Software and Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7540</td>
<td>Experimental Design</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7750</td>
<td>Introduction to Probability Theory</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7760</td>
<td>Statistical Inference</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8310</td>
<td>Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8320</td>
<td>Data Analysis II</td>
<td>3</td>
</tr>
</tbody>
</table>

Examination

Students in the applied track must pass written and oral master's exams administered by a departmental committee.

Accelerated Masters of Arts Degree and Admissions

To be considered for admission to the accelerated MA program in statistics, a student must:

- Have completed at least 90 credit hours toward a bachelor's degree with an overall GPA of at least 3.5.
- Have at least one (preferably two) semesters of undergraduate enrollment remaining before completion of a bachelor's degree.
- Have completed the following courses each with grades of 'B' or higher (a 'B minus' is not sufficient):
  - The calculus sequence (MATH 1500, MATH 1700, and MATH 2300 or equivalent).
  - A course in matrix theory (MATH 4140 or equivalent).
  - A calculus-based course covering statistical inference (STAT 4710 or STAT 4760 or equivalent).
  - A course in statistical modeling (STAT 3500 or STAT 4510 or equivalent).
- Have a GPA of at least 3.5 in all math and statistics courses completed and have earned at least a 'B' (not 'B minus') in each statistics course completed. (NOTE: It is expected that the vast majority of an applicant's math and statistics course work will have been completed in residence at MU. Students who have transferred a substantial amount of math an statistics credit from other universities may still apply to the program. These students will be evaluated individually based on both the grades earned in the transferred course and the stature of the university from which the courses were transferred.)
• Have produced an academic record that suggests the student will likely complete an MA degree in statistics.

**Satisfactory Progress**

**Length of Study**

A master’s candidate is expected to complete the master’s degree within three calendar years beginning with the first semester of enrollment unless approval is obtained from the graduate faculty of the Department of Statistics.

**Grade Requirements**

Any student, while a graduate student in this program, who receives a grade of C or lower in six or more hours of courses offered by the Department of Statistics or a grade of C or lower in nine or more hours of all courses taken will be dismissed from the graduate program unless contrary action is taken by the graduate faculty of the department.

For each credit hour over three hours with a grade of C or lower in courses offered by the Department of Statistics at the 7000 level and above, the student must receive a credit hour with a grade of A in courses offered by the department at the 7000 level and above.

**Admission Criteria**

Fall deadline for regular MA track: January 15
Fall deadline for applied MA track: March 30
Spring deadline: October 15

• Minimum TOEFL scores:
  - Internet-based test (iBT) 80
  - Paper-based test (PBT) 535

• Minimum GPA: 3.0 in math and statistics courses to enter master’s program
• Bachelor's degree from accredited college or university in related area

Undergraduate courses in statistics are recommended but not required. Consideration also is given to rank in graduating class, trends in grade records, maturity and experience, and other criteria bearing on qualifications.

Before entering the graduate program, a student should have a background that includes three semesters of calculus (or equivalent), one semester of matrix theory, and at least one post-calculus course in probability and statistics. Some required courses at the 7000 level not taken as an undergraduate may be taken for graduate credit as part of the graduate program.

**Required Application Materials**

**To the Graduate School:**
• All required Graduate School documents

**To the Program:**
• Departmental application
• 3 letters of recommendation (use departmental form)
• Letter of intent
• GRE score report