Statistics, M.S.

Requirements

The Master of Science program in statistics requires 32 s.h. of graduate credit. It includes a solid foundation in statistical computing, statistical modeling, experimental design, and mathematical statistics plus electives in statistical methods and/or theory. Students have the opportunity to concentrate on theory or applications or a combination of the two.

In addition to required coursework, students must pass a two-part graduate final examination and complete the M.S. creative component.

Students must maintain a g.p.a. of at least 3.00 in all work toward the degree and in additional relevant coursework. Students must take a computer programming proficiency test during the first semester of study; those who display inadequate programming skills are assigned activities to build their proficiency.

The M.S. with a major in statistics requires the following work.

Statistics Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT:5090</td>
<td>ALPHA Seminar</td>
<td>1</td>
</tr>
<tr>
<td>STAT:5100</td>
<td>Statistical Inference I</td>
<td>3</td>
</tr>
<tr>
<td>STAT:5101</td>
<td>Statistical Inference II</td>
<td>3</td>
</tr>
<tr>
<td>STAT:5200/ IGPI:5199</td>
<td>Applied Statistics I</td>
<td>4</td>
</tr>
<tr>
<td>STAT:5201</td>
<td>Applied Statistics II</td>
<td>3</td>
</tr>
<tr>
<td>STAT:5400/ IGPI:5400</td>
<td>Computing in Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT:6220</td>
<td>Statistical Consulting</td>
<td>3</td>
</tr>
<tr>
<td>STAT:6300</td>
<td>Probability and Stochastic Processes I</td>
<td>3</td>
</tr>
<tr>
<td>STAT:6990</td>
<td>Readings in Statistics (two consecutive enrollments)</td>
<td>2</td>
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</tbody>
</table>

At least 7 s.h. from these:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>DATA:4750</td>
<td>Probabilistic Statistical Learning</td>
<td>3</td>
</tr>
<tr>
<td>STAT:4520/ IGPI:4522/PSQF:4520</td>
<td>Bayesian Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT:4540/ BAIS:4540/IGPI:4540</td>
<td>Statistical Learning</td>
<td>3</td>
</tr>
<tr>
<td>STAT:4580/ IGPI:4580</td>
<td>Data Visualization and Data Technologies</td>
<td>3</td>
</tr>
<tr>
<td>STAT:5120</td>
<td>Mathematical Methods for Statistics</td>
<td>3</td>
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<tr>
<td>STAT:6301</td>
<td>Probability and Stochastic Processes II</td>
<td>3</td>
</tr>
<tr>
<td>STAT:6530/ IGPI:6530</td>
<td>Environmental and Spatial Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT:6547/ PSQF:6247</td>
<td>Nonparametric Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>STAT:6560</td>
<td>Applied Time Series Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT:6970</td>
<td>Topics in Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

A Ph.D.-level course numbered 7000 or above, including seminar courses

Students planning to enter the doctoral program may wish to include STAT:5120 Mathematical Methods for Statistics in their course selections, since it is part of the required Ph.D. core.

Final Examination


Final examinations are offered the week before classes begin in August. Study guides are available in the department office. Students who do not succeed the first time they take the exam may repeat it once, with the possibility to retake it the week before classes begin in January.

Students must complete all requirements and be granted the Master of Science degree within one calendar year of passing the M.S. final examination; those who do not meet this deadline are required to take the exam again.

Students entering the Ph.D. program, who will choose either biostatistics, probability/mathematical statistics, or data science as their concentration area, and who already have taken the equivalent of the first-year courses, may take the M.S. final examination in statistics before beginning further studies.

Creative Component

Students also must complete a creative component that is related to their application and career interests. Students wishing to qualify for the Ph.D. program are encouraged to write a research-oriented creative component. The creative component entails writing an 8-15 page report on a suitable topic, under an advisor’s supervision (with two consecutive 1 s.h. enrollments in STAT:6990 Readings in Statistics, normally during the fall and spring semesters of the second year). A draft of the paper should be completed by the end of the first enrollment in STAT:6990, and polished by early- to mid-semester in the second enrollment. The paper is then presented orally in a public seminar. A faculty committee, in consultation with the creative component advisor, evaluates the work and the presentation, and assigns a grade of satisfactory or unsatisfactory.

For students wishing to qualify for the Ph.D. program, the creative component represents one piece of the body of work used to determine Ph.D. qualification. The creative component must be satisfactorily completed within one calendar year of passing the M.S. final examination; failure to meet this deadline requires reexamination of the student.