Statistics, M.S.

Requirements

The Master of Science program in statistics requires 32 s.h. of graduate credit. The program prepares students for careers as professional statisticians or for entry into a Ph.D. program. 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 course work, 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 course work. Students must take a computer programming proficiency test during the first semester of study; those who display adequate 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/</td>
<td>Applied Statistics I</td>
<td>4</td>
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<tr>
<td>IGPI:5199</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT:5201</td>
<td>Applied Statistics II</td>
<td>3</td>
</tr>
<tr>
<td>STAT:5400/</td>
<td>Computing in Statistics</td>
<td>3</td>
</tr>
<tr>
<td>IGPI:5400</td>
<td></td>
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<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>
</tr>
</tbody>
</table>

At least 7 s.h. from these:

- STAT:4520/ IGPI:4522/ PSQF:4520 Bayesian Statistics 3
- STAT:4540/ IGPI:4540 Statistical Learning 3
- STAT:4580/ IGPI:4580 Data Visualization and Data Technologies 3
- STAT:5120 Mathematical Methods for Statistics 3
- STAT:6301 Probability and Stochastic Processes II 3
- STAT:6510/ IGPI:6511 Applied Generalized Regression 3
- STAT:6530/ IGPI:6530 Environmental and Spatial Statistics 3
- STAT:6540/ PSQF:6245 Applied Multivariate Analysis 3
- STAT:6547/ PSQF:6247 Nonparametric Statistical Methods 3
- STAT:6560 Applied Time Series Analysis 3
- STAT:6970 Topics in Statistics 3

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 require reexamination of the student.

Students entering the Ph.D. program, who will choose either biostatistics, probability/mathematical statistics, or statistical computing 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.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College.
Career Advancement

Statistics and probability are vital to many fields, so the demand for well-trained statisticians is strong. Statisticians work in medicine, engineering, law, public policy making, marketing, manufacturing, engineering, agriculture, varied social and natural sciences, and numerous other areas.

To learn more about job opportunities, see ASA JobWeb on the American Statistical Association website.

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.