

Statistics, MS

Requirements

The Master of Science in statistics requires 32 s.h. of graduate credit. Students must earn a minimum Graduate College major program grade-point average of 3.00. 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.

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. In addition to required coursework, students must pass a two-part graduate final examination.

All coursework must be taken on an A-F graded basis, with the exception of STAT:5090 and STAT:6990.

The MS in statistics requires the following coursework.

Requirements	Hours
Core Statistics Courses	23
Elective Courses	9
Final Examination	

Core Statistics Courses

Course #	Title	Hours
All of these:		
STAT:5090	ALPHA Seminar	1
STAT:5100	Statistical Inference I	3
STAT:5101	Statistical Inference II	3
STAT:5200/ IGPI:5199	Applied Statistics I	4
STAT:5201	Applied Statistics II	3
STAT:5400/ DATA:5400/ IGPI:5400	Computing in Statistics	3
STAT:6220/ DATA:6220	Consulting and Communication With Data	3
STAT:6300	Probability and Stochastic Processes I	3

Elective Courses

Students complete at least 9 s.h. in elective courses. A maximum of one course numbered 7000-7999 is permitted to apply toward the MS.

Course #	Title	Hours
STAT:4540/ BAIS:4540/ DATA:4540/ IGPI:4540	Statistical Learning	3
STAT:4580/ DATA:4580/ IGPI:4580	Data Visualization and Data Technologies	3
STAT:4750/ DATA:4750	Probabilistic Statistical Learning	3
STAT:5120	Mathematical Methods for Statistics	3

STAT:6301	Probability and Stochastic Processes II	3
STAT:6530/ IGPI:6530	Environmental and Spatial Statistics	3
STAT:6547/ PSQF:6247	Nonparametric Statistical Methods	3
STAT:6560	Applied Time Series Analysis	3
STAT:6970	Topics in Statistics	3
STAT:6990	Readings in Statistics (if taken, two enrollments of 1 s.h. each required)	2
STAT:7100	Advanced Inference I	3
STAT:7101	Advanced Inference II	3
STAT:7190	Seminar: Mathematical Statistics	arr.
STAT:7200	Linear Models	4
STAT:7290	Seminar: Applied Statistics	arr.
STAT:7300	Advanced Probability	3
STAT:7390	Seminar: Probability	arr.
STAT:7400/ DATA:7400/ IGPI:7400	Computer Intensive Statistics	3
STAT:7500/ BAIS:7500	Statistical Machine Learning	3
STAT:7510/ BIOS:7410	Analysis of Categorical Data	3
STAT:7520	Bayesian Analysis	3
STAT:7560	Time Series Analysis	3
STAT:7570/ BIOS:7210/ IGPI:7210	Survival Data Analysis	3

Readings in Statistics

All students are encouraged to complete 2 s.h. in STAT:6990 Readings in Statistics, engaging in a project that aligns with their application and career interests. Students typically register for the course in the fall and spring semesters of the second year for 1 s.h. each; they may complete it earlier if ready. Students must present orally in a Statistics Student Organization meeting and earn a satisfactory grade from the advisor's evaluation of the work and presentation.

If a student wishes to pursue the PhD in statistics, this course must be completed within one calendar year of passing the MS final examination. It is highly advantageous that the advisor for this course becomes the PhD advisor.

PhD Preparation

Students interested in pursuing the PhD in statistics are encouraged to include STAT:5120 Mathematical Methods for Statistics, 2 s.h. of STAT:6990 Readings in Statistics, and one statistics course (prefix STAT) numbered 7000 or higher in their course selections. See the PhD in statistics in this section of the catalog for more information.

Final Examination

The final examination consists of two parts. One covers the topics presented in STAT:5100 Statistical Inference I and STAT:5101 Statistical Inference II; the other covers the topics presented in STAT:5200/IGPI:5199 Applied Statistics I, STAT:5201 Applied Statistics II, and STAT:5400/DATA:5400/IGPI:5400 Computing in Statistics. Each

part includes a few problems that test readiness for the PhD program.

Final examinations are offered the week before the fall semester begins 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, the week before the spring semester begins in January.

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

Students entering the PhD 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 MS final examination in statistics before beginning further studies.