Statistics, BS

Requirements

The Bachelor of Science with a major in statistics requires a minimum of 120 s.h., including at least 51 s.h. of work for the major. Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. They must also complete the College of Liberal Arts and Sciences GE CLAS Core.

In planning coursework, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: students earning a BS may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the coursework is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average, but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students who earn the major in statistics may not earn the major in data science.

Students complete 10 core courses that provide essential instruction in statistical methods, applications, and theory. In addition, they may concentrate on an interest area by selecting appropriate elective courses.

The BS with a major in statistics requires the following coursework.

Requirements	Hours
Core Courses	36
Electives	15

Core Courses

All students complete the following 10 core courses.

Course #	Title	Hours
STAT:2010	Statistical Methods and Computing	3
STAT:3100/ IGPI:3100	Introduction to Mathematical Statistics I	4
STAT:3101/ IGPI:3101	Introduction to Mathematical Statistics II	3
STAT:3200/ DATA:3200/ IGPI:3200/ISE:3760	Applied Linear Regression	3
STAT:3210	Experimental Design and Analysis	3
CS:1210	Computer Science I: Fundamentals	4
MATH:1850	Calculus I	4
MATH:1860	Calculus II	4
MATH:2700	Introduction to Linear Algebra	4
MATH:2850	Calculus III	4

Electives

Students complete 15 s.h. of electives with a maximum of 6 s.h. coming from domain electives.

Course #	Title	Hours
9-15 s.h. from these:		
STAT:1015/ DATA:1015	Introduction to Data Science	3
STAT:3620/ CEE:3142/ISE:3600	Quality Control	3
STAT:4100/ IGPI:4100	Statistical Inference I	3
STAT:4101/ IGPI:4101	Statistical Inference II	3
STAT:4520/ IGPI:4522/ PSQF:4520	Bayesian Statistics	3
STAT:4540/ DATA:4540/ BAIS: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: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
STAT:6301	Probability and Stochastic Processes II	3
STAT:6530/ IGPI:6530	Environmental and Spatial Statistics	3
STAT:6550/ BIOS:6310/ IGPI:6310	Introductory Longitudinal Data Analysis	3
STAT:6560	Applied Time Series Analysis	3
ACTS:4150	Fundamentals of Short-Term Actuarial Mathematics	3
BIOS:5130/ IGPI:5130	Applied Categorical Data Analysis	3
DATA:4600/ STAT:4600	Causal Inference for Data Science	3
DATA:4610	Data Acquisition and Management	3
DATA:4620	Text Data Analysis	3
Up to two courses from these domain electives:		
STAT:5120	Mathematical Methods for Statistics	3
ACTS:3080	Mathematics of Finance I	3
ACTS:4130	Quantitative Methods for Actuaries	3
CS:2210	Discrete Structures	4
CS:2230	Computer Science II: Data Structures	4
MATH:3770	Foundations of Analysis	4
MATH:3800/ CS:3700	Introduction to Numerical Methods	3
MATH:4820/ CS:4720	Optimization Techniques	3

MATH:4840	Mathematics of Machine Learning	3