Data Science, BS

Requirements

The Bachelor of Science with a major in data science requires a minimum of 120 s.h., including at least 59 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 also must complete the College of Liberal Arts and Sciences GE CLAS Core.

Data science majors may not earn a major or minor in computer science or statistics, a major in computer science and engineering, or the Certificate in Social Science Analytics.

The BS with a major in data science requires the following coursework.

Requirements	Hours
Prerequisite Courses	12-16
Core Courses	26
Advanced Courses	9
Advanced Electives	9
Capstone Courses	3

Prerequisite Courses

Students choose one of the following sequences.

Course #	Title	Hours
These:		
MATH:1550	Engineering Mathematics I: Single Variable Calculus	4
MATH:1560	Engineering Mathematics II: Multivariable Calculus	4
MATH:2700	Introduction to Linear Algebra	4
Or these:		
MATH:1850	Calculus I	4
MATH:1860	Calculus II	4
MATH:2700	Introduction to Linear Algebra	4
MATH:2850	Calculus III	4

Core Courses

Course #	Title	Hours
All of these:		
CS:1210	Computer Science I: Fundamentals	4
CS:2210	Discrete Structures	3
CS:2230	Computer Science II: Data Structures	4
CS:3330	Algorithms	3
STAT:2010	Statistical Methods and Computing	3
STAT:3100/ IGPI:3100	Introduction to Mathematical Statistics I	3
STAT:3101/ IGPI:3101	Introduction to Mathematical Statistics II	3
STAT:3200/ DATA:3200/ IGPI:3200/ISE:3760	Applied Linear Regression	3

Advanced Courses

Course #	Title	Hours
Both of these:		
CS:4400	Database Systems	3
STAT:4580/ DATA:4580/ IGPI:4580	Data Visualization and Data Technologies	3
One of these:		
CS:5430	Machine Learning	3
STAT:4540/ BAIS:4540/ DATA:4540/ IGPI:4540	Statistical Learning	3

Advanced Electives

Course #	Title	Hours
Three of these, with at least one computer science course and one statistics course:		
DATA:4750	Probabilistic Statistical Learning	3
ACTS:6200/ DATA:6200/ STAT:6200	Predictive Analytics	3
CS:4420	Artificial Intelligence	3
CS:4440	Web Mining	3
CS:4470	Health Data Analytics	3
CS:4510	Human-Computer Interaction for Computer Science	3
CS:4630	Mobile Computing	3
CS:4700/ MATH:4860	High Performance and Parallel Computing	3
CS:5630	Cloud Computing Technology	3
MATH:4840	Mathematics of Machine Learning	3
STAT:3210	Experimental Design and Analysis	3
STAT:4520/ IGPI:4522/ PSQF:4520	Bayesian Statistics	3
STAT:4560	Statistics for Risk Modeling I	3
STAT:5810/ BIOS:5310/ IGPI:5310	Research Data Management	3
Other advanced computer science or statistics courses approved by advisor		

Capstone Courses

Course #	Title	Hours
Both of these:		
DATA:4880	Data Science Creative Component	1
DATA:4890	Data Science Practicum	2

The Department of Statistics and Actuarial Science and the Department of Computer Science collaborate to offer the major in data science.