Data Science

BS Data Science program mission

> "The ability to take data—to be able to understand it, to process it, to extract value from it, to visualize it, to communicate it—that's going to be a hugely important skill in the next decades."
>
> — Hal Varian, Chief Economist at Google

The mission of the program for a BS in Data Science is to equip our students with the necessary digital skills of gathering, analyzing, visualizing, and utilizing data for decision making by providing multidisciplinary, collaborative, active experiences to undergraduate students and professionals.

Program Goals and Outcomes

Student Learning Goals	Student Learning Outcomes
SLG 1: Students will describe problems that data can solve.	SLO 1.1: Students will identify knowledge gaps that analysis of data can fill.
	SLO 1.2 Students will formulate questions that data can answer.
SLG 2: Students will describe characteristics of data collection.	SLO 2.1: Students will describe settings where primary data are collected.
	SLO 2.2: Students will describe various types of data.
	SLO 2.3: Students describe tools utilized to collect data.
SLG 3: Students will process data.	SLO 3.1: Students will gather existing data from data sources.
	SLO 3.2: Students will prepare data for analysis.
	SLO 3.3: Students will apply statistical methods to support analysis of data.
	SLO 3.4: Students will create visualizations to foster analysis of data.
SLG 4: Students will solve problems using data.	SLO 4.1: Students will interpret answers to questions guiding a study based on data analysis results.
	SLO 4.2: Students will identify limitations of data analysis results.
SLG 5: Students will communicate data to stakeholders.	SLO 5.1: Students will develop materials for communicating data analysis results to others.
	SLO 5.2: Students will explain data analysis results to others.
SLG 6: Students will use data to make informed decisions based on data analysis results.	SLO 6.1: Students will identify decisions that may be informed by data analysis findings.
	SLO 6.2: Students will describe cautions for making decisions based on data analysis findings.

Bachelor of Science with a Major in Data Science

Required Core		
CSCI 111	Introductory Programming and Big Data	4
or CSCI 160	Computer Science I	
MATH 146	Applied Calculus	3
or MATH 165 & MATH 166	Calculus I and Calculus II	
MATH 208	Discrete Mathematics I	4
DATA 211	Applied Statistics and Data Visualization	4
or MATH 210	Elementary Statistics	
DATA 347	Data Analytics and Visualization	3
DATA 240	Programming for Data Science	4
MATH 305	Linear Algebra	4
CSCI 356	Database Management	4
or CIS 454	Data and Information Management	
CIS 453	Systems Analysis	3
or CSCI 497	Internship	
SOC 278	Social Research Methods	3
or DATA 350	Project Design and Techniques	
MATH 445	Probability and Statistics I	4

MATH 446	Probability and Statistics II	4
CSCI 456	Machine Learning, Data Mining, and Artificial Intelligence	4
DATA 491	Data Science Capstone I	2
DATA 494	Data Science Capstone II	2
General Education and Electives**		**68**
Complete your major with general education courses and combinations of minors, certificates, and/or concentrations. **Up to 69 hours may be needed to reach the 120 total hours required to earn a degree.		
Total Hours		**120**

Data science is its own integrated, multidisciplinary, professional field. The Data Science Major is an effort to equip our students with the necessary digital skills of gathering, analyzing, modeling, visualizing, and utilizing data that can enhance not only traditional students' careers, but careers of professionals who want to update or move into this vital and growing area of knowledge.Our program offers a cross-disciplined approach, meeting industry demand with program flexibility. By working with other departments to develop a complementary program, the Data Science Major provides opportunities to gain marketable skills in other areas of industry.

Data Science Minor

CSCI 111	Introductory Programming and Big Data	4
or CSCI 160	Computer Science I	
DATA 211	Applied Statistics and Data Visualization	4
or MATH 210	Elementary Statistics	
DATA 240	Programming for Data Science	4
DATA 347	Data Analytics and Visualization	3
CSCI 356	Database Management	4
or CIS 454	Data and Information Management	
Total Hours		**19**

Data science is its own integrated, multidisciplinary, professional field. The Data Science Minor program is an effort to equip our students with the necessary digital skills of gathering, analyzing, visualizing, and utilizing data that can enhance not only traditional students' careers, but careers of professionals who want to update or move into this vital and growing area of knowledge.

Applied Artificial Intelligence Minor

The undergraduate minor in Applied Artificial Intelligence provides students with the knowledge, tools and ethical awareness necessary to understand and responsibly apply AI in academic, professional, and personal context.

This minor is designed to be accessible to students of any major, with no prior AI or programming experience required. It will explore the fundamentals of AI, its diverse applications, and its implications across disciplines. Students will gain hands on experience with online tools, investigate its role in career and academic pathways, and develop a project tailored to their interests and career aspirations. Additionally, it augments student skills in programming and modeling in relation to artificial intelligence.

Required Course		
AI 101	AI Everywhere & For Everyone	3
AI 201	AI for Personal and Professional Use	3
AI 301	Projects in AI	3
CSCI 111	Introductory Programming and Big Data	4
DATA 240	Programming for Data Science	4
Total Hours		**17**