DATA SCIENCE, BACHELOR OF SCIENCE (5012)

Program Coordinator
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The Bachelor of Science in Data Science program equips students with a comprehensive understanding of the interdisciplinary field of data science. This program merges computer science, statistics, and domain-specific knowledge to harness the power of data for informed decision-making and innovative problem-solving. Through a combination of theoretical coursework, hands-on projects, and real-world applications, students will graduate with the skills necessary to excel in the rapidly evolving landscape of data-driven industries.

To earn the degree, the students have to complete a core set of classes and at least one certificate or a minor. The students will have an opportunity to personalize the degree by choosing one or multiple certificates that align with their interests.

Program Highlights:

- Interdisciplinary Approach: Our program seamlessly integrates concepts from business data analytics, economics, computer science, mathematics, and domain-specific areas, providing students with a holistic perspective on data science.
- Strong Foundation: Students will develop a solid foundation in programming, database management, statistical analysis, and machine learning techniques.
- Data Visualization: Learn to create compelling visualizations that effectively communicate complex insights to both technical and non-technical audiences.
- Industry-Standard Tools: Gain proficiency in popular tools and technologies used in the field, such as Python, R, SQL, and data manipulation libraries.
- Capstone Project: Culminate your learning journey with a capstone project where you will tackle a real-world problem using data-driven approaches under the guidance of faculty mentors.
- Career Preparation: Receive guidance on resume building, interview techniques, and job search strategies, and access our strong network of alumni working in various data science roles.
- Career Opportunities: Graduates of the program will be well-prepared for a wide range of careers in the data science field, including but not limited to:
  - Data Analyst
  - Machine Learning Analyst
  - Business Intelligence Analyst
  - Quantitative Analyst
  - Predictive Modeler
  - Market Research Analyst
  - Data Scientist

Program Requirements (51-61 hours)

Code	Title	Hours
Core Courses		**42**
BDAN 250	Introduction to Analytics	3
BDAN 310	Business Data Analytics	3
BDAN 350	Data Management	3
BDAN 420	Predictive Modeling	3
CS 180	Computer Science I	4
DATA 301	Big Data with its Applications	3
ECON 206	Statistics	3
ECON 465	Regression and Econometric Analysis	3
ECON 487	Data Methods in Economics	3
MATH 136	Calculus I	4
MATH 306	Applied and Computational Linear Algebra	3
STAT 330	Introduction to Statistical Software	3
DATA 399	Career Readiness in Data Science (Career Readiness)	1
DATA 499	Senior Assessment - Data Science (Senior Seminar)	3

Select a block of electives from one of the options below

Code	Title	Hours
Courses leading to the Applied Analytics Certificate		**9**
BDAN 305	Data Modeling and Analysis	3
Select two courses		6
BDAN 330	Structured Data Analysis	
BDAN 410	DSS Analysis and Design	
BDAN 430	Data Visualization	
Courses Leading to the Applied Statistics Minor		**9**
STAT 402	Experimental Design	3
MATH 382	Probability and Statistics I	3
MATH 482	Probability and Statistics II	3
Courses Leading to the Computer Science Minor		**16**
CS 290	Computer Science II	4
CS 351	Database Management Systems I	3
Three 300- or 400-level CS course not already in the program		9
Courses Leading to the Economic Data Analytics Certificate		**9**
ECON 307	Financial Data Modeling	3
ECON 480	Economic Forecasting	3
ECON 486	Applied Statistical Methods in Economics	3
Courses Leading to the GIS Certificate		**14**
GISC 316	Geographic Information Systems I	4
GISC 317	Geographic Information Systems II	4
GISC 417	GIS Analysis & Modeling	3
GISC 419	GIS Programming	3
Courses leading to the Health Informatics Certificate		**18-19**
BDAN 305	Data Modeling and Analysis	3
BDAN 330	Structured Data Analysis	3
HIM 230	Computer Systems and Applications in Health Information Management	3
HIM 330	Electronic Health Record Systems	3
HIM 430	Health Data Management and Analytics	3

Choose one of the following		3-4
HIM 100	Health Data Content and Structure	
HCA 340	Health Care Organization and Management	
Courses Leading to the Emergency Managment Disaster Science MDS Certificate		**12**
EMDS 400	Emergency Management Policy and Practices	3
EMDS 401	Natural and Technological Disaster Risks	3
EMDS 402	Resiliency in Response to Terrorism and Violence	3
EMDS 403	Advanced Disaster Planning, Management, and Preparedness	3

First Year

Fall	Hours	Spring	Hours
BDAN 250	3	CS 180	4
COMM 145	3	ECON 206	3
ENG 100	3	ENG 200 (or another approved Colonnade Course)	3
MATH 136	4	HIST 101 or HIST 102	3
Colonnade Explorations - Arts And Humanities	3	Colonnade Explorations - Social and Behavioral	3
	16		**16**

Second Year

Fall	Hours	Spring	Hours
BDAN 310	3	BDAN 350	3
DATA 301	3	MATH 306	3
STAT 330	3	Colonnade Explorations - Natural and Physical Sciences	3
Colonnade Explorations - Natural and Physical Sciences	3	Data Science Elective	3
Elective/Second Major/ Minor/Certificate course	3	Elective/Second Major/ Minor/Certificate course	3
	15		**15**

Third Year

Fall	Hours	Spring	Hours
ENG 300	3	DATA 399	1
ECON 465	3	ECON 487	3
Data Science Elective	3	Data Science Elective	3
Elective/Second Major/ Minor/Certificate course	3	Elective/Second Major/ Minor/Certificate course	3
Elective/Second Major/ Minor/Certificate course	3	Elective/Second Major/ Minor/Certificate course	3
		Colonnade Connections	3
	15		**16**

Fourth Year

Fall	Hours	Spring	Hours
BDAN 420	3	DATA 499	3
Elective/Second Major/ Minor/Certificate course	3	Colonnade Connections	3
Elective/Second Major/ Minor/Certificate course	3	Elective/Second Major/ Minor/Certificate course	3
Colonnade Connections	3	Elective/Second Major/ Minor/Certificate course	3
Elective/Second Major/ Minor/Certificate course	3		
	15		**12**

Total Hours 120