

DATA SCIENCE, BACHELOR OF SCIENCE (5012)

Program Coordinator

Alexander G. Lebedinsky, alex.lebedinsky@wku.edu, (270) 745-3150

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 Management 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
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Elective/Second Major/Minor/Certificate course	3	
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15 **12**

Total Hours 120