

Master of Science in Data Science & Analytics

Data Science Careers

Graduates in the data science program may find careers in these roles:

- Data Scientist
- Data Engineer
- Data Analyst
- Machine Learning Scientist
- Machine Learning Engineer
- Applications Architect
- Statistician
- Enterprise Architect
- Business Intelligence (BI) Developer
- Computer and Information Systems Manager
- Database Administrator



Earn Your Master's Degree in Data Science & Analytics!

Application

To apply, go to:

<http://blue.odu.edu/admission/apply/>

Requirements include:

Bachelor's degree from regionally accredited institution or equivalent; official transcripts from all institutions attended; resume; statement of professional goals; undergraduate coursework or experience in computer science, mathematics, statistics, information technology, engineering, or a related field; two letters of recommendation.

Contact

ODU Graduate School
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23529
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<https://www.odu.edu/graduateschool>

The Master of Science in Data Science & Analytics is a 30-credit hour, non-thesis degree program. The curriculum consists of a Core of 18 credits (6 courses), a choice of two concentrations, and a capstone project. The two concentrations are in Computational Data Analytics and Business Intelligence & Analytics. The objective of the Core is to lay the foundation required by a data scientist working in any field. Core courses will establish proficiency in data discovery, collection, processing, and cleaning; exploratory data analysis using statistics and visual analytics; and statistical modeling for prediction/forecasting. The capstone project in both concentrations will provide the opportunity to synthesize knowledge from coursework to solve real-world problems.

An Interdisciplinary, Data-Driven Program – By Design!

Coursework for the Computational Data Analytics concentration focuses on programming languages, use of complex statistical tools, and mathematical modeling. Graduates will be able to enter data science, analytical, and statistical fields. Coursework for the Business Intelligence & Analytics concentration focuses on providing students with the skills to gather, analyze, and use data to make informed decisions. Graduates will be prepared to enter business and organizations that need educated professionals to help make informed recommendations.

Master of Science in Data Science & Analytics

Old Dominion University

The Master of Science (M.S.) in Data Science & Analytics is a 30-credit hour, non-thesis degree program. The purpose of the M.S. in Data Science & Analytics is to provide students with the knowledge and skills to use state-of-the-art programming tools and software packages to develop statistical models. Students will learn to use data for identifying trends and patterns, solving problems, communicating results, and recommending optimal solutions. This program provides project-based learning opportunities, and students will discover how to use data to solve real-world business, science, public policy, or health problems by working with representatives from various industries. Graduates will be knowledgeable and skilled at developing statistical models to detect trends, organizing and managing data, and leading teams in retrieving, cleaning data, and modeling data. This M.S. program will prepare graduates to serve and to lead in fields such as business, science, public policy, and health and work in public or private settings that seek data-driven solutions.

The M.S. in Data Science & Analytics will offer two concentrations, to prepare students to apply the programming, statistics, and data processing knowledge and skills required in specific settings of data science and analytics. The students who pursue the concentration in *Computational Data Analytics* will possess the knowledge and skills to serve in science and statistical fields. Students who pursue the concentration in *Business Intelligence and Analytics* will be prepared to apply their skills to gain insight, make informed decisions, and communicate solutions to various constituents in business, non-profit, and governmental organizations.

The program is offered as a “hybrid” of traditional, face-to-face classes and online classes. A capstone project is required. Through the five core courses, students will gain knowledge about using data in various ways to solve problems. Students will choose a concentration area (pg. 2) to gain knowledge, skills, and abilities that are more specific to a setting.

Core Courses (18 Credits)

CS 620/DASC 620 Introduction to Data Science and Analytics (3 credits)
CS 624 Data Analytics and Big Data*(3 credits)
CS 625 Data Visualization* (3 credits)
STAT 603 Statistical/Probability Models for Data Science and Analytics* (3 credits)
STAT 604 Statistical Tools for Data Science and Analytics* (3 credits)

Capstone Course (3 credits)

DASC 690 Capstone Project* (3 credits)



Concentration Areas (12 Credits)

Computational Data Analytics Concentration

The purpose of this concentration is to prepare students to enter rapidly emerging fields related to data science and analytics. The coursework addresses relevant data analytics topics such as video analytics, algorithms and data structures, and information retrieval. Students learn computational data analysis, data visualization, and natural language processing. Students select four courses in consultation with the faculty advisor.

CS 522 Machine Learning I (3 credits)
CS 725 Information Visualization and Visual Analytics (3 credits)
CS 532 Web Science (3 credits)
CS 722 Machine Learning II (3 credits)
CS 733 Natural Language Processing (3 credits)
CS 734 Information Retrieval (3 credits)

Business Intelligence and Analytics Concentration

This concentration prepares students to transform data into actionable information for organizations seeking data-driven recommendations. The coursework addresses methods and tools used to store, access, and analyze data to support business decision-making. Students learn how to identify, manage, retrieve, and analyze data in order to gain insight and use the resulting information to make informed business decisions. Students select four courses in consultation with the faculty advisor.

Select two courses from:

BNAL 503 Data Exploration and Visualization (3 credits)
BNAL 515 Advanced Business Analytics with Big Data Applications (3 credits)
BNAL 721 Simulation Modeling for Business Systems (3 credits)

Select two courses from:

IT 650 Database Management Systems (3 credits)
IT 651 Business Intelligence (3 credits)
IT 652 Information and Communications Technology for Big Data (3 credits)



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Long-Term Class Schedule

Course	Title	Fall	Spring	Summer
Core Courses (18 credits)				
CS 620/DASC 620	Introduction to Data Science & Analytics	✓		✓
CS 624	Data Analytics & Big Data		✓	
CS 625	Data Visualization	✓		
STAT 603	Statistical/Probability Models for Data Science & Analytics	✓		
STAT 604	Statistical Tools for Data Science & Analytics		✓	
Computational Data Analytics Concentration (select 12 credits)				
CS 522	Introduction to Machine Learning		✓	
CS 601	Algorithms & Data Structures for Data Science			
CS 725	Information Visualization		✓	
CS 632	Web Science			
CS 722	Machine Learning	✓		
CS 727	Large Scale Video Analytics			
CS 733	Natural Language Processing	✓		
CS 734	Information Retrieval		✓	
Business Intelligence & Analytics Concentration (select 12 credits)				
Two from:				
BNAL 503	Data Exploration & Visualization		✓	
BNAL 515	Advanced Business Analytics with Big Data Applications	✓	✓	
BNAL 721	Simulation Modeling for Business Systems	✓		
Two from:				
IT 650	Database Management Systems	✓		
IT 651	Business Intelligence		✓	
IT 652	Information & Communications Technology for Big Data			✓
DASC 690	Master's Capstone Project	✓	✓	✓



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Sample Plan of Study for Full-Time Students

Course	Credits	Category
Fall I		
CS 620/DASC 620 Introduction to Data Science & Analytics	3	Core
STAT 603 Statistical/Probability Models for Data Science & Analytics	3	Core
CS 625 Data Visualization	3	Core
Concentration elective	3	Elective
TOTAL 12 credits (9 required)		
Spring I		
STAT 604 Statistical Tools for Data Science & Analytics	3	Core
CS 624 Data Analytics and Big Data	3	Core
Concentration elective	3	Elective
Concentration elective	3	Elective
TOTAL 12 credits (6 required)		
Fall II		
DASC 690 Master's Capstone Project	3	Capstone
Concentration elective	3	Elective
TOTAL 6 credits (3 required)		

Total Required for Degree—30 credits

Sample Plan of Study for Part-Time Students

Course	Credits	Category
Fall I		
CS 620/DASC 620 Introduction to Data Science & Analytics	3	Core
STAT 603 Statistical/Probability Models for Data Science & Analytics	3	Core
TOTAL 6 credits (6 required)		
Spring I		
CS 625 Data Visualization	3	Core
Concentration elective	3	Elective
TOTAL 6 credits (3 required)		
Fall II		
STAT 604 Statistical Tools for Data Science & Analytics	3	Core
CS 624 Data Analytics and Big Data	3	Core
TOTAL 6 credits (6 required)		
Spring II		
Concentration elective	3	Elective
Concentration elective	3	Elective
TOTAL 6 credits		
Fall III		
DASC 690 Master's Capstone Project	3	Capstone
Concentration elective	3	Elective
TOTAL 6 credits		

Total Required for Degree—30 credits

