DATA SCIENCE AS
Total Credits: 60
Catalog Edition: 2023-2024

Program Description

The degree provides an excellent opportunity for students wanting to increase their data literacy, improve their marketability, and/or prepare for a career in a data science field. It is also suitable for those who wish to advance their professional careers by supplementing their work experience or an existing college or graduate degree with data science knowledge. Students will use mathematics, statistics, and data science skills to tackle unstructured data, solve multifaceted problems, consider ethical implications, and make data-driven recommendations. Through hands-on experiences using a variety of the most ubiquitous data tools and technology, students will learn to build the skills necessary to explore, analyze, visualize, and communicate about large data sets. Additionally, students will explore ethical implications of the use of data in the data lifecycle.

Program Outcomes

Upon completion of this program, a student will be able to:

- Assess different analysis and data management techniques and justify the selection of a particular model or technique for a given task.
- Execute analyses of large and disparate datasets and construct models necessary for these analyses.
- Demonstrate competency with programming languages and environments for data analysis.
- Summarize and communicate findings of complex analyses in a concise way for a target audience using both graphics and statistical measures.
- Understand, evaluate, and apply ethical principles and practices in the data lifecycle.

Program Advisors

- Prof. Rachel Saidi, 240-567-5225, Rachel.Saidi@montgomerycollege.edu
- Prof. Mais Alraee, 240-567-7722, Mais.Alraee@montgomerycollege.edu

For more information, please visit https://www.montgomerycollege.edu/academics/programs/data-science/data-science-associate-of-science.html

To view the Advising Worksheet, please visit https://www.montgomerycollege.edu/_documents/counseling-and-advising/advising-worksheets/current-catalog/416.pdf

2023-2024

Program Advising Guide
An Academic Reference Tool for Students

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DATA SCIENCE AS: 416
ASSOCIATE OF SCIENCE: 416

DATA SCIENCE AS

Suggested Course Sequence

A suggested course sequence for full-time students follows. All students should review this advising guide and consult an advisor.

First Semester

ENGL 101 - Introduction to College Writing *3 semester hours* *

MATH 150 - Elementary Applied Calculus I *4 semester hours* (MATF)

OR

MATH 181 - Calculus I *4 semester hours* (MATF)

PSYC 100 - General Psychology *3 semester hours* (BSSD)

COMM 108 - Foundations of Human Communication *3 semester hours* (GEEL)

OR

COMM 112 - Business and Professional Speech Communication *3 semester hours* (GEEL)

MATH 117 - Elements of Statistics *3 semester hours*

OR

MATH 217 - Statistics for Scientists *3 semester hours*

Third Semester

Natural Sciences Distribution with Lab *4 semester hours* (NSLD) **

DATA 201 - Statistical Methods in Data Science *3 semester hours*

MATH 264 - Applications in Linear Algebra *4 semester hours* ‡

Program Elective *4 semester hours* †

Second Semester

English Foundation *3 semester hours (ENGF)*

PHIL 140 - Introduction to the Study of Ethics *3 semester hours* (HUMD)

GEOG 130 - Global Geography *3 semester hours* (BSSD, GCP)

DATA 101 - Introduction to Data Science *3 semester hours*

DATA 110 - Data Visualization and Communication *3 semester hours*

Fourth Semester

Arts Distribution *3 semester hours (ARTD)*

Natural Sciences Distribution with Lab *4 semester hours (NSLD)* **

DATA 205 - Capstone Experience in Data Science *4 semester hours*

200-Level Program Elective *3 semester hours* †

Total Credit Hours: 60

* ENGL 101/ENGL 101A, if needed for ENGL 102/ENGL 103 or program elective.

** Students are strongly encouraged to take two consecutive lab sciences courses. Examples include CHEM 131/CHEM 132, PSCI 101/PSCI 102, PHYS 203/PHYS 204.

‡ MATH 284 may be substituted for MATH 264.

† Program Electives: MATH 165, MATH 182, CMSC 140, CMSC 203, CMSC 206, GEOG 240, and GEOG 260. Department strongly recommends CMSC 206 and GEOG 240. CMSC 206 provides programming skills in Python; GEOG 240 provides foundational knowledge of Geographic Information Systems (GIS). Not all program elective options transfer to all institutions. Please consult a data science program advisor or the transfer institution before selecting program elective courses.

Transfer Opportunities

Montgomery College has partnerships with multiple four-year institutions and the tools to help you transfer. To learn more, please visit https://www.montgomerycollege.edu/transfer or http://artsys.usmd.edu .

Get Involved at MC!

Employers and Transfer Institutions are looking for experience outside the classroom.

MC Student Clubs and Organizations: https://www.montgomerycollege.edu/life-at-mc/student-life/

Related Careers

Some require a Bachelor's degree.
Data Scientist, Data Analyst, Data Engineer, Data Science Generalist, Data Science Program Manager.

Data science is now transforming industries beyond the technology industry, in areas such as health care, energy, and transportation. With benefits of data becoming more numerous and widespread, demand for data science and analytics talent is projected to grow by 15 percent by 2020 (US Bureau of Labor).

Career Services

Montgomery College offers a range of services to students and alumni to support the career planning process. To learn more, please visit https://www.montgomerycollege.edu/career

Career Coach

A valuable online search tool that will give you the opportunity to explore hundreds of potential careers or job possibilities in Maryland and the Washington D.C. metropolitan area. Get started today on your road to a new future and give it a try. For more information, please visit https://montgomerycollege.emsicc.com

Notes: