

DATA 205: Capstone Experience in Data Science

CONTACT INFORMATION

Instructor:

Offices:

Email:

Office phone:

GENERAL COURSE INFORMATION

DATA 205: Capstone Experience in Data Science, CRN, 4 credits

1. Prerequisites

A grade of C or better in DATA 110 or consent of department. PRE- or COREQUISITE(S): DATA 201.

2. Course Description

A comprehensive, project-based course where Montgomery College and its partners in industry, science, and government work alongside faculty and students providing expertise, guidance, and real data. Course includes topics in advanced data mining, data ethics, and reproducible research. Four hours each week.

3. Course Format

This course is blended and will be conducted face-to-face and online. We will meet every week on Wednesdays from 6:00 to 8:40pm. The other work for the course will be done remotely (this is the online portion). Active participation in and out of class is required in order to pass this course.

This course will use Blackboard. Information about Blackboard Technical Support can be found at <https://cms.montgomerycollege.edu/distance/support/blackboard/>. If you need technical assistance with College-supported IT resources, you can reach the Montgomery College IT Service Desk at 240-567-7222.

COMMON COURSE STUDENT LEARNING OUTCOMES

Upon course completion, a student will be able to:

- Conduct autonomous research in data science.
- Apply Cross-Industry Standard Process for Data Mining (CRISP-DM) methodology to analysis projects.
- Develop original yet reproducible analyses in a variety of formats for the general public and for members of the data science community.
- Apply data analysis and archiving techniques in a sample application area such as of industry, science, or public service.
- Assess different analysis techniques and justify the selection of a particular model or technique.

TEXTBOOK AND SUPPLIES

Computer Access: you will need computer access in order to complete the capstone project.

COURSE REQUIREMENTS

A. Participation

You are required to show up and do work! This includes attending and participating in face-to-face class sessions and any meetings for the capstone project with either the capstone mentor or myself, replying to emails, completing capstone requirements as set forth by the mentor or instructor, etc. Each category (for example one category is replying to emails) will be graded on the following rubric: 2 – Satisfactory, 1 – Needs Improvement, 0 – Not Evident.

You should conduct yourself in a professional manner throughout this course and dress appropriately for the occasion. For example, if you are meeting the capstone mentor in a government office, you may need to dress business casual (or whatever the dress code calls for in that office).

You are expected to spend about 15 hours per week working for this course (this includes class time). I expect you to attend all face-to-face class sessions.

*****IF YOU MISS TWO CLASSES IN A ROW AND I DO NOT HEAR FROM YOU FOR THOSE TWO WEEKS, YOU WILL BE DROPPED FROM THE COURSE.*****

B. Project

Throughout the semester you will work on and complete a capstone project. The parts of the project are broken down as follows: Choice of Datasets & Topics, Data Ingestion & Wrangling (Cleaning), EDA, Statistical Analysis, Data Visualization.

C. Project Plan

The project plan includes a written report and oral presentation given during class. It covers the datasets and tools you plan to use, what questions you plan to answer about the data, quality of the data, etc.

D. Progress Report

The progress report includes a written report and oral presentation given during class. It covers your capstone project progress so far such as data ingestion and wrangling, exploratory analysis, etc. More information about what to include in the paper and presentation will be posted later on in the course.

E. Final Report

On 5/13 we will have final presentations in class. The final report includes a written report and an oral presentation. More information about what to include in the paper and presentation will be posted later on in the course.

F. Resume/Portfolio

You will be required to create a resume and put together a GitHub portfolio. This assignment may also include creating a LinkedIn profile.

Make sure you give yourself enough time to complete each assignment before the deadline!

Course Requirements (and weights)

Participation	15%
Resume/Portfolio	5%
Project Plan	5%
Progress Report	5%
Project Choice of Topic & Datasets (5%) Data Ingestion & Wrangling (10%) EDA (15%) Statistical Analysis (15%) Data Visualization (15%)	60%
Final Report	10%

Course Grading Scale

90-100%	A
80-89%	B
70-79%	C
60-69%	D
0-60%	F



STUDENT CODE OF CONDUCT/COLLEGEWIDE POLICIES AND PROCEDURES

Important Student Information Link: <http://cms.montgomerycollege.edu/mcsyllabus/>

In addition to course requirements and objectives that are in this syllabus, Montgomery College has information on its web site (see link above) to assist you in having a successful experience both inside and outside of the classroom. It is important that you read and understand this information. The link above provides information and other resources to areas that pertain to Student Success such as: Student Behavior (Student Code of Conduct); Student e-mail, College Tobacco Free Policy; Course Withdrawal and Refund Information; Resources for Military Service Members, Veterans and Dependents; how to access information on delayed openings and closings; how to register for Montgomery College's Alert System and how closings and delays can impact your classes.

Finally, any student who may need accommodations due to a disability, please contact the Disability Support Services office on your campus as soon as possible (R-CB122; G-SA172; or TP/SS-ST233). If you have an accommodation letter from DSS, please contact me to discuss arrangements for your accommodations. Any student who may need assistance in the event of an emergency evacuation must identify to the Disability Support Services Office; guidelines for emergency evacuations are at:

<https://cms.montgomerycollege.edu/EDU/Plain2.aspx?id=4162>

If you have any questions please bring them to your professor. As rules and regulations change they will be updated and you will be able to access them through the link. If any student would like a written copy of these policies and procedures, the professor would be happy to provide them. By registering for this class and staying in this class, you are indicating that you acknowledge and accept these policies.

Note that:

Any student auditing this course should meet with me before or during the first class session. You are still required to complete all course activities unless otherwise agreed upon.

The Montgomery College e-mail account is the official means of communication between the instructor and the student. It is your responsibility to routinely check your MC e-mail for College and class information.

ADDITIONAL GENERAL INFORMATION

A. Syllabus Changes

The instructor reserves the right to make changes to this syllabus to provide the best educational experience for the student. Changes will be announced in class and updated in writing before they are implemented.

B. Use of Email

- Use my Montgomery College email or blackboard email.
- Because of my volume of email, it is helpful but not required to include DATA 205 in the subject line.
- Generally, I will respond to emails within two business days.
- If a time arises when I will be unable to respond to email within two business days, I will let the class know.

C. Assignment Feedback

You can view your grades on the course Blackboard page under My Grades on the course menu. You can expect that course assignments will be graded and returned within **5 business days** of the due date for that assignment.

D. Blackboard Course Page

Getting Started

Login to Blackboard using the following steps:

1. Log in to MyMC.
2. Click on the Blackboard icon in the upper right-hand corner.
3. Click on the course title, "DATA 205, Spring 2020".

Technical Requirements and Technical Support

You will need the following to access the Blackboard course page online:

- A computer with Internet access.
- A web browser such as Internet Explorer or Firefox.

For technical assistance with college supported resources, call the Montgomery College IT Service Desk at 240-567-7222. The **HELP** link on the left-hand course menu on the course Blackboard page links to the **MC Blackboard Online Support Center**. Students can

1. Call the Support Center at 240-567-7222, or
2. Chat with a service representative, or
3. Submit a ticket.

Note: Click the **My Support** link at the top of the Blackboard Online Support Center screen to view a history of your correspondence with the Blackboard Support Center.

System Downtime

The Office of Information Technology conducts computer network maintenance on Sunday morning from 12:01 AM to 6:00 AM each week. During this time, you may not be able to

access My MC to login to Blackboard. Do not rely on this time to use the course Blackboard page.

Privacy

Electronic communications do not guarantee privacy. In addition to the instructor, technical staff or administrative personnel may also access this course Blackboard page. Also, in order to respect students' privacy, sharing personal information or posting photographs on Blackboard is voluntary, not required.

Accessibility

There is a link to Blackboard's Accessibility Statement at the bottom of each course home page. Look for the link to <http://access.blackboard.com>.

