MONTGOMERY COLLEGE ROCKVILLE CAMPUS
DEPARTMENT OF MATHEMATICS AND STATISTICS
SYLLABUS – MATH 110 WRITING AND COMMUNICATION IN DATA SCIENCE
Spring 2019

Instructor Information	**Course Information**
Instructor: Ms. Rachel Saidi **Office:** SC 250 G **Email:** Rachel.Saidi@MontgomeryCollege.edu **Office Hours:** **Classroom/Times**: SC 260 **Blackboard:** All course material will be posted here https://flowingdata.com/**:** Free online course component	**CRN:** **No Grade Recorded/Change to Audit:** **Withdrawal with a Grade of W:** If you wish to withdraw from the course at any time, you must do so at the Records Office.

Please use your college email for all communications!

"The simple graph has brought more information to the data analyst's mind than any other device." — John Tukey

Course Description: Emphasis on communication skills for professional situations including effective quantitative summary and public speaking. Preparing and producing technical documents for specific audiences and analyses for general audiences.

Pre-requisite: *A grade of C or better in MATH 117/117A/217, BSAD 210, or consent of department. Three hours each week.*

Materials:

Textbooks:

Visualize This: The Flowing Data Guide to Design, Visualization, and Statistics
ISBN 9780470944882

or

Visualize This: The Flowing Data Guide to Design, Visualization, and Statistics
E-Text ISBN: 9781118140246
Direct from www.vitalsource.com

Technology:

Software such as **Tableau Public** and ***R*** will be used primarily in classwork, labs and class demonstrations. ***R*** is free and open source statistical software, which is used frequently in the field.

Course Outcomes

Upon course completion, a student will be able to:

- Construct oral and written arguments utilizing quantitative data.
- Express findings from scientific data analysis proficiently to a target audience.
- Apply techniques to develop and relate compelling stories with data.
- Compose and modify analytical summaries.
- Describe impression management strategies and situational communication preferences.

Course Requirements:

***Homework*: Please note that homework should be used for learning and studying purposes!!!**

In order to be successful in this course, you will need to log on to the course site at minimum 4 – 5 times per week. While in the course site, you will access lecture notes, slides, podcasts, video clips, and other resources. In addition, the weekly assignments will include:

1. **Homework:** You will have homework assignments EVERY WEEK, including answering questions, preparing presentations and writing assignments, and learning R to create data visualizations. Because this is a 3-credit course, you should be prepared to spend a **minimum of 6-8 hours per week outside of class** working on homework and studying. If you do not make this commitment, your chance of success is greatly diminished. ***I will check completed assignments every week.***

2. **Written / Oral Presentations:** You will have individual and group presentations on a regular basis.

3. **Classwork:** You will learn to program with R-Statistical Software and various other software each week through the course notes.

4. **Tests**: There are two in-class tests this semester

5. **Final Project**: You will find real data to analyze using statistical techniques and present results to the class.

You are responsible for:

- Answering pre-assignments (due at the very beginning of class)
- Reading/reviewing all notes and all examples
- Completing all homework assignments, both paper and online
- Practicing presenting speeches and other presentations
- If you miss class, it is your responsibility to ask a fellow student what you missed and check Blackboard.

Tips for success:

- Complete the reading before a new unit begins, and then review again after the unit is over.
- Be an active participant during class time. Ask questions - during class or office hours, or by email. Ask me and your classmates.
- Give yourself plenty of time to prepare for speeches and exams.
- Do not procrastinate - don't let a unit go by with unanswered questions as it will just make the following unit's material even more difficult to follow.

Grading Policy and Criteria:

A (90-100%) B (80-89%) C (70-79%) D (60-69%) F (0-59%)

Methods of Evaluation:

Exam 1	15 %
Exam 2	15 %
Classwork and Presentations	25 %
Homework	20 %
Final Project	25 %
TOTAL	100%

Exams: You will be given a zero for every exam missed, and **NO MAKE UPS WILL BE GIVEN,** except in situations of extreme emergencies.

Make-up Policy: Only for special circumstances, **one test** might be made up, as long as I am notified on or **before** the test. Otherwise the test will be recorded as a zero.
At the end of the semester, your lowest homework grade will be dropped. **No late work will be accepted**.

E-mail Communication Statement: MC student e-mail is an official means of communication for Montgomery College. Students are responsible for information and announcements sent via MC e-mail, and it is expected that students check their student e-mail regularly. When e-mailing an instructor, it is expected that students use their MC student e-mail account.

Academic Regulations & Student Code of Conduct:
All MC students are expected to follow "Academic Regulations" & "Student Code of Conduct" as described in the MC Student Handbook. These regulations and guidelines can be found at:
www.montgomerycollege.edu/departments/academicevp/Student_PandP.htm

Math Science Center: You may receive help here from faculty or student tutors. You may also borrow a TI graphing calculator here for one day or for the entire semester. You should take advantage of this excellent resource center. **Rockville Campus**, Judy Ackerman Learning Center (formerly the Math/Science Center) SW 109 240-567-5200, Please check for hours. http://cms.montgomerycollege.edu/AckermanSTEMLearningCenter/

Veteran's Services: If you are a veteran or on active or reserve status and you are interested in information regarding opportunities, programs and/or services, please visit the Combat2College Web site at http://www.montgomerycollege.edu/combat2college/

Inclement Weather (Delayed Opening or Closing of the College): On occasion, Montgomery College will announce a late opening or early closing of a specific campus or the entire college because of weather conditions or other emergencies. Any exams scheduled for a class that is canceled will occur immediately upon return.

- *If a class can meet for 50% or more of its regularly scheduled meeting time **OR** if the class can meet for 50 minutes or more, **it will meet**.*

For the most up-to-date information regarding College openings, closings, or emergencies, all students, faculty, and staff are encouraged to sign up for email and text alerts via Montgomery College ALERT. Registration information is available at *www.montgomerycollege.edu/emergency*

Important Student Information Link

*In addition to course requirements and objectives that are in this syllabus, Montgomery College has information on its web site (see link below) 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 below provides** information and other resources to areas that pertain to the following: student behavior (student code of conduct), student e-mail, the tobacco free policy, withdraw and refund dates, disability support services, veteran services, how to access information on delayed openings and closings, how to register for the Montgomery College alert System, and finally, how closings and delays can impact your classes. 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.*

http://cms.montgomerycollege.edu/mcsyllabus/

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Final Note: I am available during scheduled office hours and additional hours by appointment. I strongly recommend seeking help. Another useful study method is to form study groups, which I will foster during in-class activities. I look forward to a successful semester with you.

COURSE OUTLINE:

DATA 110 Tentative Course Schedule *These dates are **approximate and subject to change**.*

Day	Date	Topics	Textbook and Other Sources
Week 1	Jan 23	Introductions – Video Why Data Science (Coursera) ; syllabus; components of effective data visualizations	Chapter 1 – Telling Stories with Data; Gapminder tools
Week 2	Jan 30	Effective visualizations continued – What does the data tell us and NOT tell us? P-hacking and ethics; Web Scraping tools; Formatting tools	Chapter 2 – Handling Data; SelectorGadget and Google Refine;
Week 3	Feb 6	The Data Scientist's Toolbox; The art of the elevator pitch and forms of persuasive communication	Chapter 3 – Tools to Visualize Data; GitHub; Git Bash; Data Science Writing
Week 4	Feb 13	Forms of communication continued; Career paths for a Data Scientist/Analyst	Chapter 4 – Visualizing Patterns Over Time; Special Articles,
Week 5	Feb 20	Exploratory Graphical Analysis	Open Refine and Tableau Public
Week 6	**Feb 27**	**Exam 1**	First Exam
Week 7	March 6	Geographic Information Systems Special Discussion: Thursday, March 7 4–5:30 pm Title: Combining GIS and Statistics: Data Visualization to Communicate Findings	Chapter 8 - Visualizing Spatial Relationships; GI Systems – Special Articles; Lonely Planet Report
	March 13	Spring Break – no class this week	
Week 8	March 20	Data for Good / Data for Social Justice; Researching for background information; Create data visualizations; Presentations	Chapter 5 – Visualizing Proportions; Special Articles; Podcasts, TED Talks, Significance article: Data Rights and Wrongs and other articles
Week 9	March 27	Making static graphics in tidyverse; Forms of Bias; Presentations; Review for Exam 2	Chapter 6 – Visualizing Relationships
Week 10	April 3	Impression management strategies and situational communication preferences; continue working in tidyverse	Special Articles, Podcasts, TED Talks
Week 11	April 10	Compose and modify analytical summaries; work on projects in class	Chapter 7 – Spotting Differences Chapter 9 – Designing with a Purpose
Week 12	**Exam 2**	**Exam 2**	Second Exam
Week 13	April 24	Presentations; peer editing	Special Articles, Podcasts, TED Talks
Week 14	May 1	Special event: DATA205 Capstone Project Presentations; final edits on final projects	We will be meeting with DATA205
Week 15	**May 8**	**Final Project Presentations**	