Communicating Data

OMSBA 5210 | 3 credit hours

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COURSE DESCRIPTION

Data analytics is nearly useless if you are unable to clearly communicate what you have learned from the data. This course teaches the practical and technical skills necessary to communicate information about data clearly and effectively in written and visual form. Visualization is critical to both exploration and explanation, so the course will build both analytical and communication skills. Visualization promotes discovery, and what is discovered can be used for "storytelling" to effectively communicate, summarize, influence, explain, persuade and provide evidence to an audience. During the course students will learn conceptual, theoretical and technical skills that will enable them to learn from data, develop professional visualizations and empower them to communicate and share their findings

PREREQUISITES

The general course prerequisites include the Albers R/Python boot camp and introductory level statistics. We will use a combination of computer programs including R and Tableau, all are available on the Albers computers and available for download for SU students.

LEARNING OUTCOMES

On successful completion of this course (i.e. by passing this course), you will be able to:
1. Apply technical skills to explore and understand data
2. Understand and apply principles of data visualization
3. Be proficient using software to develop data visualizations
4. Design and implement standard visualization techniques for communication
5. Develop professional graphics to explain findings and solutions
6. Perform "storytelling" with data for effective communication

This course meets the following Seattle University's graduate learning outcomes:
• Demonstrate mastery of competencies required in their profession or field
• Demonstrate effective communication in speech and in writing
• Exhibit effective collaboration skills
This course meets the following among the Albers School's MSBA learning outcomes:
• Identify and describe complex business problems in terms of analytical models
• Communicate technical information to both technical and non-technical audiences in speech, in writing, and graphically
• Exhibit effective collaboration and leadership skills

TEXTS AND MATERIALS

The required textbook for this course is Kieran Healy's "Data Visualization", available in the bookstore or in your favorite online bookseller's, or for free at socviz.co.

Course materials and links to other texts will be provided on the Canvas course website, which can be found at: http://seattleu.instructure.com.

ASSIGNMENTS

Homework
All homework assignments are available on Canvas. Homework is worth 40% of your final grade, which is a lot! Each assignment is 5% of your grade. Most of these homework assignments will require you to create a visualization, either of your own design or following an existing design. For many of these we will follow along with whatever Tidy Tuesday is doing. I expect these to be good! Do not expect to just make a visualization and be done with it – you should plan to have time to revise your visualization until it looks good.

Projects
There are three projects in this class.

Visualization Critique Paper: You will find a data visualization "in the wild", perhaps from a news article, book, or TV show (it doesn't necessarily need to be a terrible one, but there should be some room for improvement). You will be writing about how effective the visualization is and how it holds up to the principles we cover in class. You will also be designing and drawing, by hand (or computer drawing), an improved version.

Data Translation Challenge: In this project you will explore a data set I provide, and produce a report telling a cohesive story from it, including multiple visualizations and text connecting them.

Data Exploration Assignment: This is a group project with requirements very much like the data translation challenge, except that you will have the option of finding your own data, and will be preparing a presentation instead of a report. You will be encouraged to present your data in dashboard format.

EVALUATION AND GRADING

On any assignment, including homework, perfect scores will be reserved for exceptional work. Work that merely has no obvious flaws can still receive a very good grade but will not receive a perfect score. If you want a perfect score, impress me! No more than 20% of the class will receive a perfect score on any given assignment, and I expect that percentage will usually be lower. Other than the 20% perfect-score maximum, grades in this course are not curved in any way.

Grading is necessarily a little bit subjective in a course like this, although not as subjective as it will seem at first. Such is life. I will discuss expectations clearly at the beginning of the course.

The grade breakdown is as follows. I round to the second decimal place – the cutoffs have to be somewhere! Apologies if you get a 93.98% or something, but if that became an A, then a 93.96% would be the new heartbreaking grade. Blame data discretization and lobby the university to let us report grades as exact percentages.

94 – 100% = A

90 – 93.99% = A-

87 – 89.99% = B+

84 – 86.99% = B

80 – 83.99% = B-

77 – 79.99% = C+

74 – 76.99% = C

70 – 73.99% = C-

67—69.99% = D+

64 – 66.99% = D

61 – 63.99% = D-

0 –- 60.99% = F

Keep all assignments and exams returned to you so that any discrepancies can be easily and fairly straightened out.

The grade is determined based on the following breakdown:

Homework: 40%

Visualization Critique Paper: 10%

Data Exploration Assignment: 25%

Data Translation Challenge: 25%

EXTRA CREDIT POLICY:
For a one percentage point increase in your course grade, you may submit a new page, or add a language to an existing page, at the Library of Statistical Techniques. Be sure to read the Contributing guide. Your contribution will be submitted via GitHub pull request, and the pull request must be accepted to qualify for extra credit.

COURSE POLICIES

ATTENDANCE
You are expected to participate fully in class, even though there is no explicit attendance grade or anything like that (extreme inactivity may result in a grade reduction at the discretion of the instructor). That means attending any class sessions for synchronous courses, or engaging with all of the course content for asynchronous courses. Active participation is an essential and intrinsic element of the education process. Absence affects the learning experience and erodes the program's norms for quality. Also, you realize how expensive it is for you to be here right? Would you book and pay for a nonrefundable vacation and then just not go?

When you are planning an absence, it is your responsibility to notify the instructors via e-mail to arrange any necessary make-up assignments. In addition, you will need to collaborate with cohort members or study teams to cover any missed group work. Please contact your instructor(s) to discuss concerns.

INTERNET ACCESS
We will use a variety of online applications to communicate and collaborate. As such, you will need a reliable, high-speed Internet connection for the duration of this course. If you are traveling to countries such as China, Vietnam, Saudi Arabia, Iran, Burma, and others, some content in this course may be blocked. Please contact me immediately if you will be traveling to a country that may block Internet access during any portion of this class.

LATE WORK

You have one week after the due date to turn in work at a grade penalty of 10%. One week after the due date, work will not be accepted outside of special circumstances. Let me know if you have special circumstances.

UNIVERSITY RESOURCES & POLICIES

ACADEMIC RESOURCES

- [Library and Learning Commons](#)
  Research Services, Learning Assistance, Writing Center, Math Lab, Media Production Center

- [Academic Integrity](#)

ACADEMIC POLICIES

- [Academic Integrity](#)

- [Academic Grading Grievance Policy](#)

- Support for Students with Disabilities
  If you have, or think you may have, a disability (including an "invisible disability" such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this class, you are encouraged to arrange support services and/or accommodations through Disabilities Services staff located in Loyola 100, (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process.

- Notice Regarding Religious Accommodations
  It is the policy of Seattle University to reasonably accommodate students who, due to the observance of religious holidays, expect to be absent or endure a significant hardship during certain days of their academic course or program. Please see, *Policy on Religious Accommodations for Students*.

- Office of Institutional Equity
  Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination based on sex in educational programs or activities that receive Federal financial assistance. This prohibition includes sexual misconduct, which encompasses sexual harassment and sexual violence. Seattle U remains committed to providing a safe and equitable learning, living, and working environment. Seattle U offers emergency, medical, and other support resources, as well as

assistance with safety and support measures, to community members who have experienced or been impacted by sexual misconduct.
Seattle U requires all faculty and staff to notify the University's Title IX Coordinator if they become aware of any incident of sexual misconduct experienced by a student.

For more information, please visit https://www.seattleu.edu/equity/. If you have any questions or concerns, you may also directly contact the Title IX Coordinator in the Office of Institutional Equity by email: oie@seattleu.edu or phone: (206) 296-2824.