THE OHIO STATE UNIVERSITY
JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Public Affairs 6510: Skills – Conveying Quantitative Data in Public Affairs
Syllabus
Fall 2017, First Session

Instructor Information

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Office Hours: By Appointment

Email is the best way to contact me, though feel free to text me if you prefer. I check email often and will attempt to respond to all emails within 24 hours of receiving them.

Course Information

Meeting Day/Time: Thursday, 5:45-7:35 (August 24 – October 9)
Class # 35643
Location: Page 240
Credit Hours: 1[1]

Course Description

Overview

A critical skill in today's public sector environment is the ability to effectively collect, manage, analyze, and **present** the significant amount of data needed to operate any size department or agency. Many visualization tools exist to present data in an efficient and effective manner; each has its strengths and weaknesses. By studying different techniques for how best to present information, we can make the decision-making process more efficient by helping employees, supervisors, the public and other stakeholders grasp critical points more easily. Students who master this class will have

[1] *For each credit, please expect about an hour of in class meeting time, and 2 hours out of class work. So for a one-credit class, you should expect 14 hours of in class instruction (7 meetings at 2 hours each) and about twice that outside of class preparing and doing homework, studying and assignments (approximately 4 hours per week for 7 weeks). If you feel this becomes out of proportion on a regular basis, please let me know.*

very marketable skills, as they will be able to effectively present data in a number of different ways to both illustrate and draw meaning out of the data.

Course Approach

This course focuses on concepts of presenting data from initial concepts to final presentation. A variety of methods are presented and discussed covering planning, data gathering, data validation, data analysis, and visual presentation, with an emphasis on presentation.

Student Learning Objectives

Upon successful completion of this course, students will:

- Have gained an understanding of the use of data visualization techniques
- Understand the visual qualities important to conveying data
- Manage and analyze data using Tableau software
- Manipulate and create visualizations and dashboards in Tableau
- Utilize Tableau to support decision making and communicate with decision makers

Class Structure

Class meetings will consist of two parts:

1. The first half of the class (30 - 45 min) will consist of lecture/discussion on the data presentation techniques. This will include discussion on any additional assigned readings and topics of interest for the class.

2. The second half of the class (60 – 75 min) will be hands-on time with Tableau and other data visualization tools. This may include some additional instruction time specific to Tableau, working with files, and working directly on the examples.

Course Materials *(Not Required to Purchase)*

1. Nathan Yau. (2011). *Visualize This: The Flowing Data Guide to Design, Visualization, and Statistics.* Indianapolis, Indiana: Wiley Publishing. Inc. (ISBN: 978-0-470-94488-2)
    a. *eBook Available through University Libraries Website (Safari – Books Online) ***Cannot be downloaded – must be viewed in web browser****
2. All other readings and course materials will be supplied by the instructor through https://carmen.osu.edu.

Students can access textbook information via the Barnes & Noble bookstore website: www.shopOhioState.com as well as from their BuckeyeLink Student Center. This information is disseminated by B&N to all area bookstores. You may buy from a store of your choice and/or shop for books (always use ISBN# for searches) online.

Course Requirements

The following components make up the final course grade:

Class contribution:	10%
Exercise 1:	10%
Case Study 1:	15%
Case Study 2:	10%
Exercise 2:	15%
Final Project:	40%

Transformation of numerical grade to a letter grade will be according to the schedule below:

A	93-100	B-	80-82	D+	68-69
A-	90-92	C+	78-79	D	60-67
B+	88-89	C	73-77	E	<60
B	83-87	C-	70-72		

Class Contribution

Class contribution is critical to making this course as valuable as possible for you and your fellow students. This includes having read assigned readings before class, active participation in conversations regarding those readings, asking questions, clarifying assignments, participating in the lab portion of the class, and sharing personal and professional experiences that can aid the class during discussions. Attendance is considered part of class contribution and lack of attendance or leaving the lab portion of the class early will reduce this portion of your grade. Lack of evidence that class readings were completed will also affect this portion of your grade.

Course Exercises / Projects

Exercise 1: Create Visualization *(Due August 31)*

Select at least one data set posted to Carmen, and using data visualization techniques you already know or acquired in the first class session, present the data in a meaningful manner. This can include tables, words, graphs, or other visualization graphics.. Give a brief explanation of what each of your visualizations is intended to convey. Additionally, if you wanted to do more, but did not know how, briefly explain what you would have done if you knew the technique. This assignment will serve as a benchmark of your current understanding of data analysis and visualization, meaning that the clarity with which your visualization communicates your interpretation of the data is more important than your technical ability. All Tableau files should be saved as Packaged Workbooks (.twbx).

This exercise will be due in Carmen by 5:30pm on Thursday, August 31.

Case Study 1 *(Due September 7)*

Read ***Transparency in Texas: Beyond Raw Data*** (page 1-24) and select one of the case studies (*Texas School District Finance Data, Legislative Budget Board Website, City of Kyle, or City of Manor: Transparency on a Budget*). Then select a similar government agency in the State of Ohio, select two or three of their data visualizations, and determine their strengths and weaknesses relative to their presentation of data. Write a short assessment (1-3 pages) highlighting what the Ohio agency is doing right (if anything) and what they can improve regarding how they visually present information. Include examples (as appendices) of their good and bad visual representations. Grading of your assessment will be based on how you evaluate the selected visualizatons using criteria for effective graphics presented in class lectures and readings.

This exercise will be due in Carmen by 5:30pm on Thursday, September 7.

Case Study 2 *(Due September 14)*

After reading ***The MTA in the Age of Big Data: Transforming the Wealth of MTA Data into Accessible, Meaningful, Visual, Interactive Information*** and reviewing information provided by the NYC MTA to the public currently, use data provided in Carmen or data you have obtained to create two visualizations related to the MTA. Explain what the visualization is and why it is meaningful. Additionally, review the current MTA website and provide some brief critiques on positives and negatives about the visualizations they use (keep to less than 1 page)

This exercise will be due in Carmen by 5:30PM on Thursday, September 14.

Exercise 2: Create Visualization (Advanced) Exercise *(Due September 28)*

Using Excel and/or Tableau and a dataset provided on Carmen, create two visual representations of the data and provide brief explanations of what those representations demonstrate. All Tableau files should be saved as Packaged Workbooks (.twbx).

This exercise will be due in Carmen by 5:30pm on Thursday, September 28.

Final Project *(Due October 11)*

With a dataset of your choice, create at least 4 visualizations that, together, tell a story using your data. The story could be persuasive or informative in nature (for example, to support a policy maker's decision or to convey information in a public meeting), but the choice of story is up to you, dependent on the dataset you choose. Write your story as a brief or an executive summary with your visualizations embedded at appropriate points in the text. In a second, overview document, write a summary describing each visualization, why it is necessary to the story you are telling, and why you chose to

visualize the data as you did. Also include in this second document the source of your dataset and your target audience as well as any difficulties you encountered in preparing the data for analysis and visualization. Provide copies of the source data used to create your visualizations as Excel or Tableau files. Tableau files should be saved as Packaged Workbooks (.twbx). ***Please note:*** *Take care in selecting your dataset, particularly if you wish to use data from your job, to ensure that you do not disclose any personally identifiable information or proprietary data of any kind, either in the visualizations you create or the source data you submit*.

- Final Project Grading
  - The final project is worth 40 points. Points will be distributed as follows:
    - Executive Summary (20 points)
    - Overview document (including notes on visualization preparation, analysis, audience and source) (15 points)
    - Visual appeal and logical flow (5 points)

Final Project due in Carmen by 8pm on Wednesday, October 11.

Course Policies

Assignment Submission

All assignments should be submitted through Carmen by the day they are due. Informing the instructor of your intention to be absent does not waive your obligation to submit assigned work. **Late work will be accepted with a one-third-letter grade penalty each day that it is late (A- to B+), unless prior approval is granted by the instructor.**

Grade Appeals

Grades on assignments are intended to reflect the overall quality of performance of the student. You may appeal your grade on an assignment if you think the grade does not reflect the quality of your performance on the assignment. To appeal a grade, submit a clear written explanation via email describing why you believe the assigned grade is inappropriate within one week after your work is returned. I will carefully consider all such appeals.

Academic Integrity

The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's *Code of Student Conduct*, and that all students will complete all academic and scholarly assignments with fairness and honesty. Failure to follow the rules and guidelines established in the University's *Code of Student Conduct* may constitute "Academic Misconduct." Sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

In the Ohio State University's *Code of Student Conduct*, Section 3335-23-04 defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic

misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and excessive quotation and paraphrasing of other's work with or without citation. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor.

Accommodation Policy

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Mental Health Statement

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing.

If you or someone you know is suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the **Office of Student Life Counseling and Consultation Services (CCS) by visiting ccs.osu.edu or calling 614-292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower.**

You can reach an on-call counselor when CCS is closed at 614--292—5766, and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1--800--273--TALK or at suicidepreventionlifeline.org. Also, the OSU Student Advocacy Center is a resource to help students navigate OSU and to resolve issues that they encounter at OSU – visit http://advocacy.osu.edu/

Glenn College Diversity Values Statement

The Glenn College is committed to nurturing a diverse and inclusive environment for our students, faculty, staff, and guests that celebrates the fundamental value and dignity of everyone by recognizing differences and supporting individuality. We are dedicated to creating a safe space and promoting civil discourse that acknowledges and embraces diverse perspectives on issues and challenges that affect our community.

Course Schedule

Week 1: August 24
- Welcome and Introduction to the course
- Overview of syllabus and course requirements
- Framing final project
- Introduction to Data Visualization
- Introduction to Tableau
- Explain Exercise 1 (Due August 31 @ 5:30pm)
- Read for Next Class: The Use of Data Visualization in Government (Pp. 1-17)

Week 2: August 31
- Exercise 1 Due at 5:30 PM
- Good Visualizations
- Excel Graphs
- Tableau Graphs
- Explain Case Study 1 (Due September 7 @ 5:30pm)

Week 3: September 7
- Case Study 1 Due at 5:30pm
- Design Matters
- Hands on with Tableau
- Explain Case Study 2 (Due September 14 @ 5:30pm)

Week 4: September 14
- Case Study 2 Due at 5:30pm
- Use of Color in Visualizations
- Additional Hands on with Tableau
- Explain Exercise 2: Create Advanced Visualizations (Due September 28 @ 5:30pm)

Week 5: September 21
- Advanced Tableau Techniques

Week 6: September 28
- Exercise 2 Due at 5:30pm
- Advanced Tableau Techniques Cont.

Week 7: October 5
- Telling stories with data / Wrapping up loose ends
- Work on final project

Finals Week: October 11
- Final Project – Due by October 11 @ 8PM