POSC 644: Data Visualization and Analysis for Policy Professionals

John Hulsey

I can best be reached by email at hulseyjw@jmu.edu.

I will hold in-person office hours from 5:30 to 6:30 in the conference room. I will also hold virtual office hours from 6-9pm on Tuesday evenings. You can sign up for a time here: https://calendly.com/hulseyjw/officehours

Course Description

Study of the theory and practice of choosing, attaining, managing, exploring, analyzing and presenting evidence to support policy analysis and advocacy.

Course Philosophy

Informed policy analysis, advocacy and decision-making requires the mobilization of evidence to understand the nature of policy problems and evaluate the costs and benefits of proposed solutions. Successful policy professionals will need to be able to develop their own judgements based on evidence and be able to communicate those judgements and evidence to expert and lay audiences. This course introduces students to an essential set of data visualization tools to enable them to interpret, evaluate, construct and present visualizations.

Course Objectives

This course pursues three broad sets of goals: principles of evidence and research design, practices of data analysis and visualization and the use of EU and Member State data to explore variation across member states and citizens of the European Union.

Students will be able to:

Principles of Evidence and Research Design

- choose appropriate comparisons to inform policy decision-making.
- evaluate the reliability of evidence and measures.
- evaluate evidence for competing hypotheses related to policy decision-making.

Practices of Data Analysis and Visualization

- identify and practice a reproducible data workflow.
- choose appropriate data sources.
- manipulate data to prepare it for analysis.

- create visual representations of data and relationships.

Using Data to Understand the European Union

- access sources of data on EU members and policies and adapt them for analysis and visualization.

Course Modality

This class will meet in person for the first five weeks of the semester. The balance of the semester will be conducted online.

Course Assignments and Evaluation

Class Attendance and Participation-10%

This course is built around participatory learning. Accordingly, students need to be present in class and prepared to engage in thoughtful, informed discussion both in-person and online. Prepared, attentive students are absolutely necessary for productive class periods. The Attendance, Participation and Preparedness grade reflects student performance on in-class and online assignments, active participation in in-class activities, and online class activities.

Class attendance is mandatory. Missed classes may be excused if discussed with me ahead of time. Unexcused absences will affect your participation grade.

Homework Assignments - 20%

Summative Data Visualization Assignment - 20%

The first unit of the class focuses on building foundational data science skills in R and RStudio. Students will complete an independent, take-home assignment in which they will take a provided dataset and perform the data management, analysis and visualization tasks required to answer a set of questions. Due 10/16.

Final Exam - 20%

The Final Exam will focus on components and principles of research design and data visualization. Due 12/11.

Policy Area Website - 30%

The major project for the class will be a web site that familiarizes the reader with an EU policy area using at least five original visualizations to explain the fundamentals of the policy area, important changes over time, and relevant differences across member states, regions, individuals or industries. Students will submit the website as well as the code and data used to create the visuals. Due 11/27

Grading Scale

93-100 A	90-92.9 A-
87-89.9 B+	83-86.9 B
80-82.9 B-	77-79.9 C+
73-76.9 C	70-72.9 C-
66-69.9 D	below 66 F

Each assignment or graded component of the class will carry a given number of points. At the end of the term, your final grade will be a weighted average of your points earned out of the total points possible.

Course Texts:

Healy, Kieran. 2018. *Data Visualization: A Practical Introduction.* Princeton University Press. Princeton.

Perry, Robert and John Robertson. 2002. *Comparative Analysis of Nations.* Westview Press. Cambridge.

Wickham, Hadley and Garret Grolemund. 2017. *R for Data Science: Import, Tidy, Transform, Visualize and Model Data.* O'Reilly Media. Sebastopol, CA.

Wilke, Claus, E. 2019, *Fundamentals of data visualization: a primer on making informative and compelling figures.* O'Reilly Media. Sebastopol, CA.

All textbooks are currently available as e-books free from the library or from the author's website. . Additional required readings will be posted to Canvas.

Course Policies

If you have any disability that we should know about, please talk to me so that we can make appropriate arrangements. For any non-trivial accommodations, you will need paperwork from the office of disability services http://www.jmu.edu/ods/ .

Please turn off all cell phones during class. Try not to leave either early or arrive late, since it is hard to do so without causing a disturbance. If you know you will be leaving early, please tell us ahead of time.

Finally, you are responsible for knowing the honor code and abiding by it (http://www.jmu.edu/honor/). If you have questions about how the honor code applies to this class PLEASE discuss it with me before you turn it in.

For further discussion of university policies regarding academic honesty, add/drop, disability services, inclement weather, and religious observances, see: *www.jmu.edu/syllabus*.

Everything in the syllabus is subject to change, and all changes will be announced in class (when feasible) and via Canvas.

Course Schedule

The Course Schedule, including readings and assignments is available on canvas.jmu.edu