DMJN328: Quantitative Research Methods for Journalists

Simon J. Kiss

Winter 2021
Wilfrid Laurier University - Brantford
MW 10:00-11:20
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Office Hours: Thursday 1 - 3 p.m. (tentative)

Course Description

This course builds on material in DMJN208, developing students' facility with quantitative research methods used in journalism and media research. Students learn to work with and critically assess quantitative information, with a particular emphasis on polls and scientific studies. The course covers basic and intermediate statistical concepts and calculations. Potential topics include survey research design and interpretation, causation, the central limit theorem, standard error, statistical significance and confidence intervals.

Measures for Covid

To a very large degree, this course has been *flipped*. This means that for each class, there is an expectation that you have completed some background work prior to the class. For the "Introduction" section, it will be assumed that you will have read the readings in Healy (2018). For the "Introduction to R for Journalists" section, it will be assumed that you will have at least watched one of the tutorial videos and, ideally, tried to follow along some of the code. The class time will then be spent going over some quizzes to test and improve your knowledge (ungraded!) with the assistance of the instructor. For the last section "Advanced statistics for Journalists", will be primarily lecture based.

I understand these are extraordinary times; it has been extremely stressful for me as well. I am also aware that much of this course is quite technical and pushes students not necessarily used to quantitative research or intensive

computer programming. So I want to tell you a few features of this course that I've integrated to lower the temperature here.

First, the bulk of the assessments in this course are awarded on a pass-fail or modified pass-fail basis. This means that for the two major assignments (the graph and the map) handing in something that meets the basic criteria guarantees an A. An A+ will be available to those students who go the extra mile producing more elaborate work. My goal here is to take the pressure off so that you can focus on learning. Do the work and you are guaranteed to get an A or close to an A, period.

Second, either the DMJ program or myself (it depends on what happens in January) have invested several hundred dollars to purchase access to RStudio Cloud. This software *greatly* facilitates remote learning and minimizes what you need to do on your end to get into the material.

Third, if you look at the course schedule, you'll see there are a few days where there is nothing scheduled. So we have time for in-class work on the assignments or to re-arrange the schedule as needed.

Fourth, I've uploaded a document to the course mylearningspace page that includes some advice from last year's students; please read it.

Pep Talk

Learning R can be tough; Lord knows I struggled to learn it. But learning anything is always hard. But when you have really learned it. Wow, there is no better feeling in the world. And once you have learned even just a few basic things in R you - and others - will be absolutely amazed at what you can accomplish. One of the leaders in developing R, Hadley Wickham, had this to say about frustration and learning to code and R.

> It's easy when you start out programming to get really frustrated and think,"Oh it's me, I'm really stupid," or, "I'm not made out to program." But, that is absolutely not the case. Everyone gets frustrated. I still get frustrated occasionally when writing R code.It's just a natural part of programming. So, it happens to everyone and gets less and less over time. Don't blame yourself. Just take abreak, do something fun, and then come back and try again later.

There will be moments where you want to bash your head against the desk. Don't. Ask me for help any way (e.g. personally, e-mail, mylearningspace). Take a break. Walk around. Go get a drink. Watch cat videos on YouTube for a few minutes then just come back and take a break. You. can. do. this... And when you're done, you will be blown away....

Learning Outcomes

At the end of this course will be able to:

1. understand basic principles of data visualization
2. import successfully a variety of datasets into R
3. to manipulate different types of variables found in modern datasets in R
4. to produce and modify basic charts and graphs in R
5. understand basic statistical concepts such as measures of central tendency, variation and inference.

Course Calendar And Readings

Introduction

Monday, January 11, 2021

1. Discussion of The Joy of Stats
2. Introduction to R and RStudio

Wednesday, January 13, 2021
Before class read Ch. 1 of Healy 2018

Monday, January 18, 2021
Before class read Ch. 2-3 of Healy (2018)
In Class work through code in Ch. 2-3 of Healy (2018)

Introduction to R For Journalists

Wednesday, January 20, 2021
Before class watch and work through code in:

1. How to Use R
   (a) Rstudio Guide Module 1, Part 1(7:36)
   (b) Introduction to R Module 1, Part 2 (15:05) and Part 3 (18:51)
   (c) Data structures in R Module 1, Part 4 (19:11)

In class conduct exercises at the end of:

1. How to use R
   (a) Introduction to R
   (b) Data Structures

Presentation of data visualizations

Monday, January 25, 2021
Before class watch and work through code in:

1. Importing/Exporting Data Module 1 Video 6 (12:55) (Optional)
    (a) CSV Files
    (b) Excel Files Module 1 Video 8 (11:57)

In class work through exercises at the end of:

1. Importing/Exporting Data
    (a) CSV Files
    (b) Excel Files

Presentation of data visualizations

Wednesday, January 27, 2021
Where to search for data?

1. Statistics Canada data
2. Public Opinion Data
3. Municipal data
4. Open government sites
5. Twitter

Presentation of data visualizations

Monday, February 1, 2021
Before class watch and work through code in:

1. Wrangling data Module 2, Part 1 (2:42)
    (a) Transforming and analyzing data Module 2, Part 2 (21:27)

In class conduct exercises for:

1. Wrangling data
    (a) Transforming and analyzing data Questions 1-3

Wednesday, February 3, 2021

1. Wrangling Data
    (a) Transforming and analyzing data Module 2, Part 3 (14:56)
    (b) Transforming and analyzing data Module 2, Part 4 (20:21)

In class conduct exercises for:

1. Wrangling data
    (a) Transforming and analyzing data Questions 4-8

Monday, February 8, 2021

1. Wrangling Data
    (a) Tidying and joining data Module 2, Part 5 (22:03)
    (b) Tidying and joining data Module 2, Part 6 (13:46)

In class work through:

1. Wrangling Data
    (a) Tidying and joining data

Wednesday, February 10, 2021
Working and with Statistics Canada data

Monday, February 15, 2021

Before class watch and work through code in:

1. Wrangling Data
    (a) Handling Strings Module 2, part 8 (16:58)
    (b) Dealing with Dates Module 2, part 9 (7:04)

In class work through exercises in:

1. Wrangling Data
    (a) Handling Strings
    (b) Dealing with Dates

Wednesday, February 17, 2021
In class work and support on Assignment 2

February 22-24, 2021
Reading Week - No classes

Monday, March 1, 2021
Before class watch

1. Visualizing data Module 3, Video, Part 1(5:00)
    (a) Charts with ggplot2 Module 3, Video, Part 2(18:50)

In class, work through exercises

1. Visualizing Data
    (a) Charts with ggplot2
    (b) Customizing charts

Wednesday, March 3, 2021
Before class watch

1. Visualizing data
    (a) Charts with ggplot2 Module 3, Video, Part 3(20:01)
    (b) Charts with ggplot2 Module 3, Video, Part 4(12:31)

In class, work through exercises

1. Visualizing Data
    (a) Customizing charts

Monday, March 8, 2021
Review, Project Work

Wednesday, March 10, 2021
Before class watch:

1. Spatial analysis Module 4, Part1(4:01)
    (a) Static Maps Module 4, Part 2 (20:54)

In class work through exercises:

1. Shape Files

Monday, March 15, 2021
Before class watch:

1. Spatial Analysis
    (a) Static Maps Module 4, Part 3(29:03)

In class work through exercises:

1. Small Multiples

Wednesday, March 17, 2021
Review class

Advanced statistics for Journalists

Monday, March 22, 2021
Measures of Central Tendency (Mean, Median and Modee
Measures of Dispersion (Variance and Standard Deviation

Wednesday, March 24, 2021
Central Limit Theorem, Sampling, Uncertainty, Standard Error I

Monday, March 29, 2021
Hypothesis Testing

Wednesday, March 31, 2021
Linear Model 1 (T-Test, Group Means)

Monday, April 5, 2021
Linear Model 2

Wednesday, April 7, 2021
Chi-Squared, Margin of Error in Polls

Monday, April 12, 2021
FIN

Course Readings

There are some readings assigned from Kieran Healy. *Data visualization: a practical introduction*. Princeton University Press, 2018 which is available for free at: https://socviz.co/

Software Requirements

We will be using an online version of R and RStudio to complete this course, and so you should be able to complete the course with only a moderately powered computer. However, as a back-up, I would like you to install R and RStudio on your own computers (see the steps below). Please note: if you do not have a personal computer, I understand the Digital Media and Journalism program has arranged for limited access to the Mac lab in OD211. Please contact me or the program assistant, Jennifer Beam for information.

R

1. Visit `https://cran.r-project.org/index.html`
2. Select Download R for (Mac) OS X or Download R for Windows
3. Select the latest package of R for download and install as you would any regular software. For macs, this involves double-clicking the .pkg file that is downloaded and walking through the steps in the dialogue menu.

RStudio

1. Visit `https://rstudio.com/products/rstudio/download/`
2. Select the Free Desktop version; it should direct you to a download screen appropriate to your operating system.

Assignments:

Assignment	Weight	Due Date
News Data Journalism Visualization Presentation	10%	TBA
Graph of data	25%	Monday March 8
Map	25%	TBA Wednesday, April 19
Final Exam	40%	TBA

Assignment Descriptions

0.0.1 Proposal of data-set for visualization

News Data Journalism Visualization Presentation

In this assignment students will present a recent example of some kind of data visualization for a news media outlet, either online or in print. Student will present the data visualization to the class and discuss it with the class (pass/fail).

Graph of Data

In this assignment, students will present one original graph of some kind of data that they find newsworthy. Part of the assignment will include finding the data, importing it into R, manipulating it fairly and as necessary and producing a compelling, attractive graph that communicates a newsworthy pattern.

Map

In this assignment, students will present one original map of some kind kind of data that they find newsworthy. Part of the assignment will include finding the data, importing it into R, manipulating it fairly and as necessary and producing a compelling, attractive map that communicates a newsworthy patterns.

Final Exam

A final exam will be conducted that covers basic statistical concepts covered in the course and the text Stray (2016) (see Course Readings).

Late Submissions

Enter details here.

E-mail contact:

You can contact me at skiss@wlu.ca. I don't check work e-mail after 5:00 p.m. though.

Academic Integrity

Wilfrid Laurier University uses software that can check for plagiarism. if requested to do so by the instructor, students are required to submit their written work in electronic form and have it checked for plagiarism.

Laurier is committed to a culture of integrity within and beyond the classroom. This culture values trustworthiness (i.e., honesty, integrity, reliability), fairness, caring, respect, responsibility and citizenship. Together, we have a shared responsibility to uphold this culture in our academic and nonacademic behaviour. The University has a defined policy with respect to academic misconduct. As a Laurier student you are responsible for familiarizing yourself with this policy and the accompanying penalty guidelines, some of which may appear on your transcript if there is a finding of misconduct. The relevant policy can be found at Laurier's academic integrity website along with resources to educate and support you in upholding a culture of integrity. Ignorance is not a defense.

Accessible Learning

Students with special needs are advised to contact Laurier's Accessible Learning Office for information regarding its services and resources. They are also encouraged to review the Calendar for information regarding all services available on campus.

1 Syllabus Statement on Intellectual Property:

The educational materials developed for this course, including, but not limited to, lecture notes and slides, handout materials, examinations and assignments, and any materials posted to MyLearningSpace, are the intellectual property of the course instructor. These materials have been developed for student use only and they are not intended for wider dissemination and/or communication outside of a given course. Posting or providing unauthorized audio, video, or textual material of lecture content to third-party websites violates an instructor's intellectual property rights, and the Canadian Copyright Act. Recording lectures in any way is prohibited in this course unless specific permission has been granted by the instructor. Failure to follow these instructions may be in contravention of the university's Student Non-Academic Code of Conduct and/or Code of Academic Conduct, and will result in appropriate penalties. Participation in this course constitutes an agreement by all parties to abide by the relevant University Policies, and to respect the intellectual property of others during and after their association with Wilfrid Laurier University.

General Information

1. Academic Calendars: Students are encouraged to review the Academic Calendar for information regarding all important dates, deadlines, and services available on campus.

2. Classroom Use of Electronic Devices: Students are free to use electronic devices - except smart phones - for study and learning purposes only.

3. Final Examinations: Students are strongly urged not to make any commitments (i.e., vacation) during the examination period. Students are required to be available for examinations during the examination periods of all terms in which they register.

Brantford Resources:

- Brantford Student Food Bank: All students are eligible to use this service to ensure they're eating healthy when overwhelmed, stressed or financially strained. Anonymously request a package online 24-7. All dietary restrictions accommodated.

- Brantford Foot Patrol: 519-751-PTRL (7875). A volunteer operated safe walk program, available Monday to Thursday, from 6:30 p.m. to 1 a.m. and Friday to Sunday, from 6:30 p.m. to 11 p.m. Radio dispatched teams are available upon call to escort students to and from campus as well as off-campus destinations either by foot or by van
- Brantford Wellness Centre: Call 1-884-437-3247 (HERE247) or 519-756-8228, x5803. Students have access to support for all their health and counselling needs at the Wellness Centre. Located in the Student Centre, floor 2. Hours: 8:30 a.m. to 4:30 p.m. Monday to Friday.

Multi-campus Resource:

- Peer Help Line is a confidential listening, referral, information and crisis support line. It is available during evening hours to provide support. Call 1.866.281.7337.