DMJN328: Quantitative Research Methods for Journalists

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Winter 2020
Wilfrid Laurier University - Brantford
MW 10-11:30 OD211
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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.

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 a break, 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

Before class, please watch the documentary movie The Joy of Stats (59:12)

Monday, January 6, 2020
Introduction

1. Discussion of *The Joy of Stats*
2. Introduction to R and RStudio
3. Introductdion to GitHub

Wednesday, January 8, 2020
Introduction
Before class read Ch. 1 of Healy (2018)

Monday, January 13,2020
Introduction to Data Visualization in R
Before class read Chapter 2-3 of Healy (2018)
In class work through code in Ch. 2-3, of Healy (2018)

Wednesday, January 15, 2020
Introduction to R For Journalists
Before class watch and work through code in:

1. How to Use R
   (a) Rstudio GuideModule 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)
(d) Setting Up For This Class (5:13)
(e) R Basics

In class conduct exercises at the end of:

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

Monday, January 20, 2020
Introduction to R For Journalists
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)
   (c) SPSS Files Module 1 Video 12 (13:55)

In class work through exercises at the end of:

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

Wednesday, January 22, 2020

1. Where to search for data?
   (a) Statistics Canada data
   (b) Public Opinion Data
   (c) Municipal data
   (d) Open government sites
2. Discussion of projects

Monday, January 27, 2020
R for Journalists
Before class watch and work through code in:

1. Wrangling dataModule 2, Part 1 (2:42)
   (a) Transforming and analyzing data Module 2, Part 2 (21:27),
   (b) Transforming and analyzing data Module 2, Part 3 (14:56)
   (c) Transforming and analyzing data Module 2, Part 4 (20:21)

In class conduct exercises for

1. Wrangling data
   (a) Transforming and analyzing data

Monday, February 3, 2020
R for Journalists

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 5, 2020

R For Journalists

Before class watch and work through code in:

1. Wrangling Data
    (a) Handling Strings Module 2, part 8 (16:57)
    (b) Dealing with Dates Module 2, part 9 (7:04)

In class work through exercises for:

1. Wrangling data
    (a) Handling Strings
    (b) Dealing with dates

Monday, February 10, 2020

In class work and support on Assignment 2

Wednesday, February 12, 2020

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

Monday, February 17-19, 2020

Reading Week - No classes

Monday, February 24, 2020

R For Journalists

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

Wednesday, February 26, 2020
R For Journalists
Review, Project Work

Monday, March 2, 2020
R For Journalists
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

Wednesday, March 4, 2020
Before class watch:

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

In class work through exercises:

1. Small Multiples

Monday, March 9, 2020
Advanced statistics for Journalists
Why quantify?
Levels of Measurement

Wednesday, March 11, 2020
Advanced statistics for Journalists
Measures of Central Tendency

Monday, March 16, 2020
Advanced statistics for Journalists
Sampling Error, Central Limit Theorem, Uncertainty (Margins of Error)

Wednesday, March 18, 2020
Advanced statistics for Journalists
Causation, Research Design

Monday, March 23, 2020
Advanced statistics for Journalists
Statistical Significance

Wednesday, March 25, 2020
Advanced statistics for Journalists
Probability and the Crisis in Science.

Monday, March 30, 2020
Review, Wrap up, In class work on Assignment 3

Wednesday, April 1, 2020
Review, FIN!

Course Readings

Please purchase

1. Kieran Healy. *Data visualization: a practical introduction*. Princeton University Press, 2018
2. Jonathan Stray. *The Curious Journalist's Guide to Data*. Tow Reports. New York: Tow Center for Digital Journalism, 2016. URL: `https://www.cjr.org/tow_center_reports/the_curious_journalists_guide_to_data.php/` (visited on 12/13/2019) (available as a coursepack in the bookstore)

Software Requirements

We will be using three different software packages in this course: R, RStudio and GitHub Desktop. Each of these software packages will be installed for your use on all the computers in OD211. At a basic level, you should be able to complete the course without bringing any personal technology. However, you may find it useful to install this software on your personal computer so that you can work on the course material at your own pace.

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.

GitHub Desktop

1. Visit `https://desktop.github.com/`
2. Select Download for MacOs or Download for Windows (as appropriate)

3. Install

In addition, please come with an account created at http://www.github.com. Github is a leading platform for collaborating on software development projects as well as sharing data and code with the public.

Assignments:

Assignment	Weight	Due Date
News Data Visualization Presentation	15%	January 20th, 2020
Graph of data	25 %	March 2, 2020
Map	25%	April 1, 2020
Final Exam	35%	TBA

Assignment Descriptions

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. This assignment will be graded on a modified pass-fail basis. Completing the assignment students will receive an A and extra points will be available for certain bonus points.

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. This assignment will be graded on a modified pass-fail basis. Completing the assignment students will receive an A and extra points will be available for certain bonus points.

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

E-mail contact:

Please contact me on mylearningspace.

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.

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** (http://yourstudentsunion.ca/service/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** (https://students.wlu.ca/wellness-and-recreation/safety/foot-patrol.html): 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** (https://students.wlu.ca/wellness-and-recreation/safety/foot-patrol.html): 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:

- **Good2Talk** A confidential listening, referral, information and crisis support line, is available during evening hours to provide support 1-866-281-7337