

SYLLABUS UPDATED 3/29/2020

Changes due to our move online are highlighted in red

Professor:

Brenden Timpe
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402-472-2327

Office: **<https://unl.zoom.us/j/3461974131>**
Office hours: 10:45am-12:15pm Thursday
1:00-2:00pm Wednesday
or by appointment

Teaching Assistant:

Henrietta Ankomah

Office: **Zoom**
Office hours: **By appointment**

COURSE DESCRIPTION

This course is designed to help you develop practical data analysis skills and gain hands-on experience working with real-world data. We are motivated by a central question: How can we use increasingly abundant and accessible sources of data to better understand the world around us? You will be asked to find or collect data that can shed light on important economic and social issues, analyze the data using modern statistical software, and communicate your results in a way that is accessible and compelling to a wider audience. Along the way, we will talk about effective ways to explore and summarize data, the methodology behind data collection and its implications for how we use and interpret it, and general principles of data visualization. **We will meet for our regular classes via Zoom at <https://unl.zoom.us/j/3461974131>, but a recording will be posted on Canvas for those who cannot attend at the regular time.**

The prerequisites for this course are ECON 210 or both ECON 211 and 212, plus ECON 215 or an equivalent course in probability and statistics. Please note that you alone are responsible for ensuring that you meet these formal prerequisites.

COURSE MATERIALS

There is one required textbook for this course: **“Mind on Statistics” by Jessica M. Utts and Robert F. Heckard.** Copies are available for rent or purchase at the campus bookstore or your favorite alternative to the campus bookstore. Note that while the book is on its fifth edition, the second, third, or fourth editions would suffice for the purposes of this course.

In addition to the textbook above, we will make use of the following textbooks that are freely available online:

- “**Doing Economics**” by Eileen Tipoe and Ralf Becker, <https://www.core-econ.org/project/doing-economics/>
- “**Data Visualization: A Practical Introduction**,” by Kieran Healy, <https://socviz.co/>
- “**Cookbook for R**,” by Winston Chang, <http://www.cookbook-r.com/>
- “**R for Data Science**,” by Hadley Wickham, <https://r4ds.had.co.nz/>

This course is designed to provide hands-on experience working with data, and so you will need access to statistical software. We will use **R**, an open-source programming language that is an increasingly common tool for economists and other data analysts. If you have never used R, don't worry! You need no familiarity with either to take this course; we will learn as we go. R is available free of charge online (I recommend RStudio at <https://www.rstudio.com/>). If you'd rather not install R on your personal computer, you can also use the web-browser version (<https://rstudio.cloud>) or use R Studio in the School of Business computer lab. Note that laptops can also be checked out through UNL's Information Technology Services (follow [this link](#) for more information).

Finally, we will also use a series of journal articles, news stories, and blog posts that are available either through the UNL library or online. I will distribute these as we go.

I will use the course **Canvas** site to distribute slides, assignments, readings, and other course-related materials. Please make sure you have access to the site and *check it regularly*. If you do not have access to the site, your first step should be to check MyRED, which provides your Canvas ID.

The topics of data analysis and data visualization have spawned a vast literature that would be impossible to cover in a one-semester course. Below is a handful of additional references that I have found compelling. These are not required or even necessarily recommended for this course, but I list them here as a reference for those wishing to explore the topic further in your future pursuits:

The Visual Display of Quantitative Information, by Edward Tufte

Visual Explanations, by Edward Tufte

Show Me the Numbers: Designing Tables and Graphs to Enlighten, by Stephen Few

Exploratory Data Analysis, by John W. Tukey

Visualize This: The FlowingData Guide to Design, by Nathan Yau

Storytelling with Data: A Data Visualization Guide for Business Professionals, by Cole Nussbaumer Knaflic

COURSE EVALUATION

The primary objective of this course is to help you learn to be a sophisticated producer and consumer of data analysis. In line with this objective, you will be asked to complete a research project. This will include the development of a research question that interests you, an analysis of the question using economic theory, identification of a source of data that could shed light on this question, and an *original* analysis of this data. The project is due **May 4**, but you will also need to produce a short project proposal (due February 18) and mid-semester project update (due **March 31**). Including the proposal and mid-semester update, this project will comprise **45%** of your grade. More details will follow early in the semester.

In addition, you will complete a total of 10 homework assignments and **1 formal exam** over the course of the semester. The **exam makes up 15%** of your grade in all, while the homework assignments will comprise the final **40%**. The homework is designed to reinforce the concepts we discuss in class, as well as to build your experience working with R. As such, the homework is graded primarily on effort, rather than on getting the right answer. In addition, I drop your two lowest homework scores. This means that you don't need to worry if you do poorly on a single homework, but it also means that *I cannot accept*

homework that is late for any reason. Please be aware that I cannot provide special opportunities to obtain extra credit or otherwise make up for poor performance.

Breakdown:

Course project: **35%**

2 project updates: 5% each

10 homework assignments (drop lowest 2): **40%**

Midterm exam: 15%

Final exam: 15%

Exam Schedule:

MID-TERM EXAM: March 5 in HLH 211 during class time

FINAL EXAM: May 7, 10:00am-12:00pm in HLH 211

Grading scale:

99-100	A+	80-81	B-	68-69	D+
92-98	A	78-79	C+	62-67	D
90-91	A-	72-77	C	60-61	D-
88-89	B+	70-71	C-	0-59	F
82-87	B				

CORRESPONDENCE

The best way to get in touch with me is by email or attending office hours. When emailing, please include ECON 409 in the subject line. I will do my best to respond within 24 hours, but reserve the right to ignore questions that are adequately answered in the syllabus.

CLASSROOM STANDARDS

Please be courteous to your fellow classmates. Cell phones should be silenced and remain unused. Laptops and tablets will often be used in the classroom because this is a data analysis course. However, [research suggests](#) they can hinder learning for you and – perhaps more importantly – those sitting around you. I reserve the right to ask students to leave if their behavior becomes a distraction to others.

ACADEMIC INTEGRITY

Per the UNL Student Code of Conduct: "The maintenance of academic honesty and integrity is a vital concern of the University community. Any student found guilty of academic dishonesty shall be subject to both academic and disciplinary sanctions."

Academic dishonesty includes, but is not limited to, the following: Copying or attempting to copy from an academic test or examination of another student; using or attempting to use unauthorized materials, information, notes, study aids or other devices for an academic test, examination or exercise; engaging or attempting to engage the assistance of another individual in misrepresenting the academic performance of a student; communicating information in an unauthorized manner to another person for an academic test, examination or exercise; plagiarism; tampering with academic records and examinations; falsifying identity; aiding other students in academic dishonesty, and other behaviors in the student judicial code of conduct, Article III section B (stuafs.unl.edu/dos/code)

The penalties for academic dishonesty will be severe, and may range from receiving a failing grade on the test or assignment, failing the course in which academic dishonesty took place, or the possibility of expulsion from the university. Faculty will report all cases of academic dishonesty to the Dean of Students at UNL, who will place a report in the student's permanent file. A file of academic integrity violations will also be maintained by the College of Business.

If you copy, or substantially copy, work from anyone else on a paper, the work must be put in quotes and the source(s) cited. Otherwise, it is plagiarism. If plagiarism or other forms of academic dishonesty are found on a group work assignment, it is possible that every member of the group will be punished. It is to your advantage to check out anything that does not seem like the work of your group members or colleagues. Written assignments are subject to verification using Turnitin for plagiarism.

ACCESSIBILITY SUPPORT

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can discuss options privately. To establish reasonable accommodations, I may request that you register with Services for Students with Disabilities (SSD). If you are eligible for services and register with their office, make arrangements with me as soon as possible to discuss your accommodations so they can be implemented in a timely manner. SSD contact information: 232 Canfield Admin Bldg.; 402-472-3787.

WEATHER/FIRE

Every UNL campus building has emergency shelter and evacuation plans. Please familiarize yourself with the plans of each building in which you take classes or attend meetings. Make sure to note the routes to the lowest level of the buildings for shelter during inclement weather, as well as exits from the buildings in the event of fire or other emergency. For more information on emergency procedures visit <http://emergency.unl.edu>.

In the event of a medical emergency in the classroom immediately call 9-1-1 and take steps to assist the individual as needed. For details on what to do during Medical Emergencies, visit the Medical Emergencies handbook (http://wellness.unl.edu/wellness_documents/medical_emergencies.pdf).

ACTIVE SHOOTER/PHYSICAL ATTACK

If there is a clear and safe escape route:

Run – If there is a clear and safe escape route.

Hide – If there is no escape and you can get to a secure location to hide.

Fight – If your only option is to defend yourself, fight as if your life depended upon it.

For more details and video training for all emergency procedures visit <http://emergency.unl.edu>.

WRITING SUPPORT

The UNL Writing Center can provide you with meaningful support as you write for this class as well as for every course in which you enroll. Trained peer consultants are available to talk with you about all forms of communication, including lab reports, presentations, research papers, cover letters, and application essays. You can visit at any stage of the process, from brainstorming and organizing ideas through polishing a final draft. The UNL Writing Center is located in 102 Andrews Hall, with evening hours in the Adele Hall Learning Commons and other satellite locations. You can schedule 25- and 50-

Spring 2020

Econ 409: Economic Data Visualization and Analysis

TTh 9:30am

minute appointments any time by visiting <https://unl.mywconline.com>. For more information about the Writing Center, including hours and other locations, please visit <http://www.unl.edu/writing>.