Statistics/Sociology/CSSS 221
Spring 2018

Classroom: Savery Hall 260

Dates/Time: Monday, Wednesday, Friday 9:30-10:20 AM

Instructor: Professor Tyler McCormick

Office Hours: Wednesday, 10:45 – 12:15, beginning April 4.
                       Savery Hall 238

Teaching Assistants:

          Sara Laplante
          John Leverso
          Xinguang Fan

Part I: About the course

Course Description and Objectives:

This course introduces students to the discipline of statistics as a science of understanding and analyzing data. Throughout the semester, students will learn how to effectively make use of data in the face of uncertainty: how to collect data, how to analyze data, and how to use data to make inferences and conclusions about real world phenomena.

This course is an introduction to statistical concepts and methods used by social scientists. The overall objective is to provide you with the ability to use statistical tools to critically evaluate data and to be analytical consumers of information in the mass media. By the end of this course, you will be able to:

1. Define scientific questions and problems in statistical terms.
2. Evaluate statistical claims in scientific and popular press writing.
3. Analyze data and describe statistical solutions in scientific settings.

Skills:

Along with statistical problem solving skills that you will learn, this class is designed to help you improve the following skills that are useful in life and in future employment:

- Critical thinking
- Recognize the importance of data collection, identify limitations in data collection methods, and determine how they affect the scope of inference.
- Critique data-based claims and evaluate data-based decisions.
- Identifying problems and questions about society
- Working in a group
- Writing
- Presenting before an audience

Prerequisites:

There are no formal course prerequisites for this course; however, proficiency with basic arithmetic and algebra will be assumed and won't be covered as part of the course material.

Students with previous courses in statistics or substantial previous coursework in mathematics should speak with Prof. McCormick about whether this course is appropriate.

Part II: Course rules & logistics

Textbook:

OpenIntro Statistics. Diez, Barr, Çetinkaya-Rundel CreateSpace, 3rd Edition, 2015 (ISBN: 978-1943450039)

Download free at https://www.openintro.org/stat/textbook.php

Course website:

Available through the UW Canvas system. Includes, syllabus, updates to the syllabus, scheduling changes, sign-up sheet for office hours, announcements, and other course related materials. Update your communication preferences to be notified of announcements and changes to the schedule.

Communication:

Your instruction team will manage and contribute to the discussion board on Canvas. This forum should be your *first resource* if you have questions. Your participation (both asking and answering questions) in the online discussion board also factors into your participation grade (see below).

We also encourage you to attend office hours of the statistics tutoring center to discuss questions whenever possible. Many of the concepts in this course are difficult to address over email and/or require a whiteboard or computer to illustrate.

Note: If you need to get in touch with Prof. McCormick directly, please use the Canvas messaging system. As this is a large class, the response time for these messages will typically be around 72 hours. **Prof. McCormick will not respond to messages on any other platform**, except in special circumstances (e.g. communicating with UW DRS). **Check with your TA about their preferred way to communicate directly.**

Things you need to do to succeed in this class:

This course is designed around active learning principles. You will be expected to participate in activities and discussion in class. The following things will help you to succeed:

1. Read and study the assigned sections of the text **before** class. This is where you will learn the content of the course.

2. Come to and participate in class and section. This is where you will practice and learn how to use the content in the textbook.

3. Do homework assignments soon **after** class. Doing homework assignments soon after you have read the textbook and participated in class activities will help solidify your learning and ensure better retention.

4. Use the university resources for statistics and writing described below.

5. Think about the numbers, statistics and graphs that you see on the internet, in the newspaper, on TV, or in other classes. What do they tell you about the world? How do they relate to what we have been studying in this class? How could they be misinterpreted if you did not have statistical training?

Course policies:
1. There will be no make-up quizzes. If you need to miss a quiz for health reasons, you must provide documentation from a healthcare provider or other extenuating circumstance. Missing a quiz without documentation before the quiz (except extenuating circumstances) will result in a 0 for that assignment. It is **your** responsibility to contact Prof. McCormick and make arrangements before the quiz. To take a make-up exam, you must provide documentation from a healthcare provider with a recommendation that is specific to the exam day, otherwise the exam will be counted as a 0. It is your responsibility to provide this documentation **before** the exam period (except extremely extenuating and documentable circumstances).

2.   **No cell phone use during class**. If you receive a call or message you must take, please step outside. Prof. McCormick will not lecture while cell phones are being used.

3. As this is an active learning setting, laptop use during class is discouraged. If you would like to use a laptop, please sit in the back left (when facing the screen) corner of the classroom.

4. Grading is based on demonstrated mastery of statistical procedures. No credit is given for numerical solutions and no marks are deducted for mathematical errors.

5. You will be allowed to use a calculator in this class. A simple calculator that can take square roots should be sufficient.   You cannot use a device that communicates with other devices (such as a cell phone) on quizzes or exams.

6.   **You must attend your assigned section. Swapping sections is not permitted.**

7. If you find a typo in a graded assignment, please contact your section TA. If you disagree with the interpretation of your score, submit a request for re-grading to Prof. McCormick. You must submit this request within one week of receiving the assignment. You must include a written explanation of your case, along with your assignment.

8. Students are expected to maintain the university policy on Academic Responsibility (https://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf). Suspected violations will be reported immediately to the Office of the Dean. **No exceptions.**

Part III: Course components

Assignments and Grading
Your course grade will be based on the following:
- Quizzes   10%
- Midterm   25%
- Final   35%
- Participation   15%
- Labs   15%

Quizzes
The goal of frequent quizzes is to be sure that students understand the material as the course progresses and to give the instructor feedback about any areas that need clarification.
Each Thursday section will begin with a 10 minute quiz covering all material from the previous of week. Quizzes will be based mostly on homework problems and questions from other assigned materials. Homework and class notes may be used on the quizzes (closed book).
The lowest quiz grade will be dropped when computing final grades. **Quizzes will be distributed promptly at the beginning of class and there will be no make-up quizzes or extra time for late arrivals/missed quiz sections.**

Homework
Homework is perhaps the most valuable tool for a statistics student. Homework problems are an opportunity to practice critical skills and receive valuable feedback. Homework problems will be assigned out of the text book, with occasional supplemental problems. Numerical solutions will either be provided by the text or posted on the course webpage.

It is assumed that students have completed all homework assignments. Homework will not be collected. Questions regarding homework problems are welcomed and encouraged during office hours.

Exams
There will be a midterm and a final exam. The midterm will be on **April 27**. The final will take place during the university scheduled exam time. This term, our exam is scheduled for **8:30-10:20 am on Wednesday, June 6.** Note: It will not be possible to make accomodations for travel taking place before the end of the final. Please take this into account when you book your beginning of summer travel!

Exams will be open notes, but closed books/electronics. The final will be cumulative. Exams cover all aspects of the course (e.g. material covered in lecture, computing labs)

Labs
In nearly every situation statisticians face more data than can be feasibly managed by hand. This is a good thing! It does mean, though, that just knowing lots of statistical techniques isn't enough! Learning how to represent and analyze large amounts of data is a crucial component of statistical analysis. After the quiz in the Thursday section, you will have a 40 minute computing lab.

Labs will be completed using Datacamp, which provides access to many state of the art computing environments through your browser. You will need a free Datacamp account to participate (you'll do this in the first week section). You do not need to install any special software, but **you will need a laptop in every Thursday lab**. If this presents difficulty for you please let your TA know and we will work with you to make accomodations.

Labs are graded based on completion, not correctness. That is, if you complete all the exercises in the lab you'll receive full credit, regardless of the number of attempts required to complete them. It will be possible to finish most labs during the assigned section. If you don't finish, though, you have until the assigned due date of the lab to finish.

Participation
This course includes extensive in-class activities where you will practice working through statistical problems and participate in analytical discussions of the meaning of statistical results of these problems. Your participation in these activities will count towards your grade.

During most regular class sessions I will use online polls through the Poll Everywhere system to gauge your understanding of basic concepts and get your responses to questions posed in class. Poll Everywhere lets you use your own device to complete in class polls (no purchase of a clicker required). Instructions on how to set up the system here: (https://www.polleverywhere.com/guides/student/troubleshooting) **Do this right away**!

Participation will be measured in the following ways:
- Completion of in-class polls
- Asking and answering questions or contributing to discussions on the Canvas discussion board for the class **most weeks.**
- Taking part in activities during the Tuesday quiz section (activities will sporadically require written assignments to be turned in to be graded for completion)

All components of participation count equally. That is, if you are absent from a class and miss an in-class poll, you can "make up" the participation from that class by completing an extra post on the course discussion board.

Summary: what's due when?
<u>Quizzes:</u> Every Thursday, first 10 minutes of section
<u>Homework:</u> not collected, solutions in textbook
<u>Exams:</u> April 27 (midterm), June 6 (cumulative final)
<u>Labs:</u> Usually you will finish in section, due date assigned for each lab if you don't finish
<u>Participation:</u> Discussion board, in class polls, Tuesday section activities

Final Grades
Final grades will be determined based on your percentage score that includes all of the components above. Grade percentages will be converted to final numeric grades and curving

will only take place on final grades. Percentages will correspond to *at least* the standard UW scale as follows:

%	Grade
10	0.0
20	0.8
30	1.2
40	1.6
50	2.0

%	Grade
60	2.4
70	2.8
80	3.2
90	3.6
>98	4.0

Part IV: Resources

Academic accommodations:
To request academic accommodations due to disability, please contact Disabled Student Services, 448 Schmitz Hall, (206) 543-8924. Myself and your TA will be happy to provide academic accommodations if you have a letter requesting such from Disability Resources for Students (DRS). Please feel free to see me during office hours to discuss this.

University Resources for Statistics and Writing:
Departments with the University of Washington maintain several centers that support student statistics work and writing. You should absolutely use these resources, which are free of charge and will help you to better understand and complete your work correctly.

Department of Statistics Tutor and Study Center:
Offers free tutoring on statistics that can help you with homework, studying for quizzes, working on group projects, and answering statistical questions.
> *Website:* https://www.stat.washington.edu/academics/tutoring
> *Location:* CMU B023

Center for Social Science Computation and Research (CSSCR):
Operates drop-in computer lab with SPSS software. Provides free consulting on using computer software for statistics, five days a week, by drop-in or appointment.

> *Website:* http://julius.csscr.washington.edu/default.htm
> *Consulting Office:* 119 Savery
> *Drop-in computer lab:* 118 Savery

Sociology Writing Center:
Offers free one-on-one tutoring appointments that assist you with all stages of writing for your group projects. Sessions are by appointment.

> *Website:* https://soc.washington.edu/sociology-writing-center
> *Office:* 203 Savery