

Term: Spring 2020

Day/Time: Tuesday and Thursday 11am – 12:20pm

Location: LVL 3V

Professor: Ji Zhou

Phone: (213) 821-7876

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Office Hours: Thursday 12:30pm – 1:30pm; other times are available by appointment either in person or virtually

Web: Blackboard, Cengage/WebAssign

Course Description

We are exposed daily to information from surveys and scientific studies concerning our health, behavior, attitudes, and beliefs, or revealing scientific and technological breakthroughs. This course is designed to help you understand this information and filter the useful and the accurate from the useless and the misleading. You will learn to rely on your own interpretation of results emerging from surveys and studies. You will read them with a critical eye so that you can make your own judgments as well as make better decisions when faced with uncertainty.

This course is also designed to demystify statistical methods for you. Traditional statistics courses often place emphasis on how to compute rather than on how to understand. This course develops statistical literacy and critical thinking through real-world applications, with an emphasis on ideas and understanding, not calculations. You will learn the key concepts that you need to know to consume statistical results produced by others. These concepts are introduced in interesting applied and real contexts, without using an abundance of technicalities or calculations that only serve to confuse students.

Learning Outcomes

By the end of the course, you will be able to:

- Determine whether the results of a study should be taken seriously.
- Detect false conclusions and biased results.
- Critically assess relationships between such factors as aspirin consumption and heart attack rates or meditation and test scores.
- Detect misleading graphs and figures and to interpret trends over time.
- Learn how to turn numbers into useful information.
- Understand uncertainty in life.

Prerequisites

This class is designed for students who are going to consume statistics and not produce it, so I expect basic algebra skills (high school algebra).

Required Material

Please get a digital version of WebAssign access for *Seeing Through Statistics, 4th Edition* by Jessica Utts (2015). Hard copy is not required. WebAssign enrollment instruction with class key is posted on Blackboard.

We will use Blackboard for all course materials, assignments, and announcements. Please check Blackboard and your email daily. If you would like hard copies of any course materials, it will be your responsibility to print them.

Structure

Each topic in the course is motivated by one or more cases. Some of the cases we will use are:

- Does Aspirin Prevent Heart Attacks?
- Using Probability to Detect Cheating
- Who Suffers from Hangovers?
- Can Meditation Improve Test Scores?
- Baldness and Heart Attacks
- Can Eating Cereal Reduce Obesity?
- Coffee and Longevity
- Quitting Smoking with Nicotine Patches
- Smoking and Reduced Fertility
- Smoking During Pregnancy and the Child's IQ
- Assessing Discrimination in Hiring and Firing
- Birthdays and Death Days, Is there a Connection?
- Calibrating Weather Forecasters and Physicians
- Streak Shooting in Basketball, Reality or Illusion?
- Did Your Mother's Breakfast Determine Your Sex?
- Do Americans Really Vote When They Say They Do?
- Testing the Existence of Extrasensory Perception
- Public Opinions about President Bill Clinton
- Losing the Least: Sports Betting, Casinos or Lotteries?
- A Weighty Issue: Woman Want Less, Men Want More
- Are Attitudes about Love and Romance Hereditary?

Assessment*Class Participation*

Attendance and class participation are critical to having an engaged, meaningful discussion with your peers in this seminar. Attendance is mandatory. If you must miss a class, please inform me beforehand. Your participation will be evaluated on the quality of your contribution during in-class discussions and the pre-class reading assignments.

Homework

There are six homework assignments. For each assignment, you will need to revise the week's work, as well synthesize some new information from the help pages or the web. All assignments will be submitted via WebAssign.

Quizzes

There are six quizzes, open-book and open-notes. However, you are not allowed to share your book or notes with others; nor are you allowed to talk to others at any time during the quiz. All quizzes are timed. You need to bring your laptop to the quizzes. No makes-up quizzes are offered. Quizzes can't be re-taken.

Final Project and Presentation

The final project will be the “capstone” of the semester. You will select a topic of interest and find multiple journal articles/research reports/news stories that are rich in statistical analysis and graphics. You will critically assess the information, determine whether the results apply to you, and provide recommendations to others. You will summarize your findings and conclusions in a final paper and also present them to your peers with examples and handouts. To ensure you are on track to completing the final project, you will submit a project proposal around mid-term (see the detailed date below). Guidelines for the proposal, the final paper, and the presentation will be posted on Blackboard.

Assessment	% of Grade
Participation	15%
Homework	20%
Quizzes	20%
Final Project Proposal	10%
Final Project Presentation (evaluated by peers)	10%
Final Project Paper	25%
Total	100%

Assignment Submission Policy

All homework assignments must be turned in via WebAssign and all final project assignments must be turned in via Blackboard by the due date. Any assignment turned in late, even if by only a few seconds, will result in a zero. Please plan ahead as the internet might break down unexpectedly if you wait until the last minute.

Requesting Work Be Re-graded

Not I, nor the graders, nor the software are infallible. We all make mistakes. If you think we have made an error in grading one of your assignments, please email me to request me to take a second look. It is possible, however, that the second look results in a lower grade.

Computer and Smartphone Policy

In order to make learning practical this class, involves some computer usage. Despite the temptations posed by computers in a classroom, I expect students to be engaged and to act like responsible and professional adults. This means focusing on class, not doing other work or surfing the internet. In particular, when the class convenes after computer exercises to discuss results, you should cease working on the computer and join the discussion. Fiddling with the computer during discussion is disrespectful to your peers who are speaking, and generally unprofessional. Smartphone use during class is not permitted under any circumstances. Do not take it out. Do not check it. Definitely silence it.

Important Dates

Detailed schedules are posted on Blackboard.

Date	Assignment	What's covered? Where to find it?
Jan 23	Homework 1	Week 1-2 material via WebAssign
Jan 28	Quiz 1	
Feb 6	Homework 2	Week 3-4 material via WebAssign
Feb 11	Quiz 2	
Feb 25	Homework 3	Week 5-7 material via WebAssign
Feb 27	Quiz 3	
March 10	Homework 4	Week 8-9 material via WebAssign
March 12	Quiz 4	
March 12	Final Project Proposal	
March 17, 19	No Class, Spring Break	
April 2	Homework 5	Week 11-12 material via WebAssign
April 7	Quiz 5	
April 16	Homework 6	Week 13-14 material via WebAssign
April 21	Quiz 6	
April 28, 30	Final Project Presentation	
May 5	Final Project Paper	

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open 8:30 am - 5:00 pm, Monday through Friday. The phone number for DSP is 213 740-0776.

USC Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, “Behavior Violating University Standards” <https://policy.usc.edu/scampus-part-b/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

Support Systems

Student Counseling Services (SCS), (213) 740-7711, 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

<https://engemannshc.usc.edu/counseling/>

National Suicide Prevention Lifeline, 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <http://www.suicidepreventionlifeline.org>

Relationship & Sexual Violence Prevention Services (RSVP), (213) 740-4900, 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp/>

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <http://sarc.usc.edu/>

Office of Equity and Diversity (OED)/Title IX compliance, (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class.

<https://equity.usc.edu/>

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. <https://studentaffairs.usc.edu/bias-assessment-response-support/>

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. <https://dsp.usc.edu/>

USC Support & Advocacy, (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. <https://studentaffairs.usc.edu/ssa/>

Diversity at USC

Tab for Events, Programs and Training, Task Force (including representatives for each school), Chronology, Participate, Resources for Students. <https://diversity.usc.edu/>

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. <https://emergency.usc.edu/>

USC Department of Public Safety, UPC: (213) 740-4321, HSC: (323) 442-1000, 24-hour emergency or to report a crime.

Provides overall safety to USC community. <https://dps.usc.edu/>

Emergency Preparedness/Course Continuity

In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.

Please activate your course in Blackboard with access to the course syllabus. Whether or not you use Blackboard regularly, these preparations will be crucial in an emergency. USC's Blackboard learning management system and support information is available at <https://blackboard.usc.edu/>.

Disclaimer: The instructor reserves the right to alter this course (she most likely won't).