PSCH 343: Statistical Methods in Behavioral Science
Syllabus - Fall 2020
Updated - 9 Sept 2020

Overview

Lecture: Presented asynchronously, new lectures released on Mondays.

Discussion: Fridays at assigned times via Blackboard Collaborate Ultra

Instructor: Ryne Estabrook, PhD (cestabr2@uic.edu)

Student Drop-In Hours: M/Th 2:30-3:30pm, and by appointment.

Course Objectives and Goals

The goal of this course is to provide an overview of the basic statistical methods used in psychology and serve as an introduction to psychological research methods and data science. Topics will include statistical inference, probability distributions, sampling, hypothesis testing, t-tests, correlation, and analysis of variance.

At the end of this course, you should not only be able to carry out the various statistical operations covered during the semester, but gain a familiarity of how to work with data. *The most important goal from this course is for all of you to become comfortable making decisions based on numerical information.*

Course Structure

All course materials will be accessed via Blackboard. This course consists of weekly lectures, a weekly discussion section, and assigned homework, quizzes, and exams.

Lectures

Lectures will be presented asynchronously, with pre-recorded lectures replacing the two in-person 75 minute lectures in a traditional course. Lectures will be released weekly on Mondays, and will remain available for the duration of the course. This means that the first week's lectures are available now, and will remain available until the course is over. The next set of lectures will become available next week, and so on.

Discussion Section

Weekly discussion sections will meet on Fridays via Blackboard Collaborate Ultra. These sessions will reinforce lecture material, provide practice on topics and techniques taught in lectures and homework, and provide smaller groups for discussion. You should have completed this week's lectures and quiz prior to your Friday discussion section.

Drop-in Hours and Student Engagement

Drop-in hours will be completed via Blackboard Collaborate Ultra. I will also make myself available for individual meetings as requested over e-mail. Our class Blackboard site will also include a discussion board where you can post questions and comments on the material.

At the start of each week, I will send a summary of this week's content, including information about videos, assignments, and a written or video response to the questions I've received this week.

While the class is asyncronous, your TAs and I are here to teach and support your learning, and I strongly encourage you to reach out to us as resources early and often. I will adapt the class, its structure, and materials to your feedback, so please let me know what you would like to do differently.

Course Materials

Textbook

One textbook is required for this course: *Statistics for The Behavioral Sciences* by Gravetter & Wallnau. The 10th edition is current, but any edition between 7 and 10 is sufficient. Inexpensive used copies of editions 7-9 are readily available.

Software, Smartphones, & Calculators

You will need some method for doing basic calculations for coursework and during exams. Smartphone calculators or any internet-capapble devices are allowed during class, but not during exams and quizzes. You are free to bring a simple or scientific calculator to exams.

I will be using scientific software called R in class. R is a free open source statistical computing environment. It can be downloaded for free at https://cran.r-project.org/. It is not in any way required for this class, and will not be used for your assignments, quizzes, or exams. However, it does perform required calculations, and you are free to follow along with any provided code.

Grading

Grading for this class will be divided into four categories: exams, quizzes, homework, and discussion participation.

Exams (60%)

There will be three exams in this class, each worth 20% of your grade. The majority of the items on these exams will consist of free-format responses in which you carry out an analysis and interpret the result. For these questions, you'll be provided with a brief description of a research project or experiment, as well as all data required to complete the analysis. You will then be required to carry out the requested analysis and interpret the result.

You may use any course materials you wish to complete the exam, including the textbook, your notes from lecture videos, the videos themselves, and any of your homework.

Exams are not cumulative: the course is broadly divided into three equal sections, and each exam covers the material specific to each section of the course. However, course content is somewhat cumulative: the basic methods taught early in the course will be a part of more advanced methods taught later.

Your last homework assignment before each exam will be a practice exam, that will have a comparable format, difficulty, and length as your exam. This will serve as your study guide. I will also provide formula sheets that give a single location for common formula you will use.

Exam Schedule (Updated)

Exams 1 and 2 will follow the schedule below. Practice tests will be released just like any other homework: they are available at the start of weeks 5 and 10, and due the subsequent Monday. Your discussion sessions on the Fridays of these weeks will review the practice tests. The exam will be made available on Sunday (9/29 and 11/3), and will be due at 5pm central time on Wednesday (10/2 and 11/6).

Item	Date	Exam 1	Exam 2	Final
Practice Test Available	Monday	9/21	10/26	11/30
Expanded Office Hours (2-3:30)	Thursday	9/24	10/29	12/3
Exam Available	Sunday	9/27	11/1	12/6
Practice Test Due	Monday	9/28	11/2	12/7
Exam Due	Wednesday	9/30	11/4	12/9

Quizzes (20%)

Quizzes will be given weekly to reinforce lecture and readings. They will be released along with the lectures on Mondays, and due on Sunday. They will largely consist of multiple choice and short answer questions.

Homework (10%)

Homework will be given weekly to provide practice for skills and methods learned in class. Homework is required and will be graded: however, it will be graded as simple pass-fail based on effort. Like quizzes, they will be assigned on Monday and due ~~Sunday)~~ the subsequent Monday.

Participation (10%)

Participation and attendence in discussion will be recorded and evaluated each week.

Academic Integrity & Class Conduct

There will be no tolerance for plagiarism or cheating. Plagiarism/cheating will result in loss of credit for the exam or assignment and further, more serious, consequences, including suspension from the university (see Student Disciplinary Policy for what qualities are academic integrity: https://dos.uic.edu/community-standards/academic-integrity/).

Beyond that, please do your part in creating a positive learning environment for other students.

Student Accommodations

Students in need of accommodations should reach out to the disability resource center (DRC). The DRC provides resources and support to allow equal access for all students, and can provide a letter of accommodation (LOA). LOAs describe the accomodations required going forward, do not expire, and to not discose private information. If you think you might benefit from support related to a disability, you can contact the DRC by phone at (312) 413-2183, visit drc.uic.edu, e-mail drc@uic.edu, or stop by the office in SSB 1070.

You will never be required to disclose private information releated to your LOA to instructors or teaching assistants. However, LOAs are strictly proactive, and only cover course materials and assignments going forward from the receipt of an LOA. Please reach out to the DRC as soon as possible.

Counseling Services are available for all UIC students. You may seek free and confidential services from the CounselingCenter (www.counseling.uic.edu). The Counseling Center is located in the Student Services Building; you may contact them at (312) 996-3490.

Attendance and Makeups

Attendance in discussion sections will be recorded as part of your participation grade. There will be no make-up exams or quizzes. Your lowest two quizzes, homeworks, and discussion grades will be dropped. This is designed to replace a more complicated excused absence and missed work system. Emergencies, illnesses, weather, and other priorities happen. This is why you can drop several of each assignment type.

Absent a valid justification (family emergency or medical issue with documentation; see "Student Accomodations"), missed quizzes and exams will count as a zero (0). With a documented justification, the exam in question will be dropped and the remaining grades averaged to generate the scores for that section.

Other

You will get out of this class what you put into it. You must be proactive in asking for the help you need. It is much easier to make a small correction early than it is to re-teach weeks of the course long after you had a question. Because of this semester's format, it is more important than previous semesters to reach out when you need help, clarification, or other support.

Tentative Weekly Schedule

This schedule is tentative and can change in response to student needs. All lectures will be released on the date listed below, which is always a Monday. Homework and quizzes will be due the following Sunday. Note: the calendar below does not note

Week	Date	Topic	Reading	
1	8/24	Introduction to Research & Statistics, Frequency Distributions	Ch 1-2	
2	8/31	Central Tendency & Variation	Ch 3-4	
3	9/7	Probability & Samples	Ch 5-6	
4	9/14	Hypothesis Testing	Ch 7-8	
5	9/21	Intro to T-Tests	Review	Ch 9
Exam 1				
6	9/28	Introduction to T-Tests	Ch 9	
7	10/5	Independent Samples T-Tests	Ch 10	
8	10/12	Intro to ANOVA	Ch 14	
9	10/19	One-Way ANOVA, Multiple Testing	Ch 14	
10	10/26	Correlation & Review	Ch 15	
Exam 2				
11	11/2	Two-Way ANOVA	Ch 14	
12	11/9	Two-Way ANOVA & Matched Sample *t*	Ch 14, 11	
13	11/16	Repeated Measures ANOVA	Ch 13	
14	11/23	Chi-Square (Shortened due to Thanksgiving)	Ch 17	
15	11/30	Chi-Square & Review	Ch 17	
Final Exam				