Psychology 210: Psychological Statistics

Spring Semester, 2023
Tuesday and Thursday, 10:00 – 11:20. Maxey 207
Lab Tuesdays, 7:30 - 8:30 p.m. Maxey Computer Lab

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Office hours: Tuesday 12-1; Thursday 2:30-3:30; and by appointment

Course Materials
Required Text:
Bluman, A.G. (2013). Elementary Statistics: A Step by Step Approach (10th ed.) New York: McGraw Hill.

The text is available at the Whitman bookstore. On some days you'll need to bring it to class (or find a buddy/conspirator who does), as the various tables will be needed for completing problems and exercises. On some days (consult the schedule later in this syllabus) the cardboard foldout with a subset of the tables will be adequate. Exams are partly open-book, so you'll want to be absolutely certain you have your own textbook with you on exam day.

Calculator: You'll also want to have a calculator to bring to class and exams. It need not be fancy, but should be capable of handling exponents, square roots, and factorials. If you don't already own one, the bookstore carries several nice calculators, in varying levels of impressiveness.

Course Overview
This course is intended to provide an introduction to data analysis, probability theory, and statistical methods as they are commonly used in psychology. Understanding and being able to perform these analyses is an important part of grasping how psychology is done, as statistics constitute some of the most powerful tools available to psychologists. Unfortunately, statistical analyses are also some of the most constraining and misused tools available to psychologists. It is my hope that students will gain not only the ability to properly calculate and interpret statistics, but will also gain an appreciation for why these methods are used, and what their various strengths and weaknesses are.

An Important Note: Psych 210 is a class that rewards tenacity. The most successful students are invariably those who stay on top of homework and lab assignments. Not

only do these make up a sizable chunk of your grade, but completing them will help you perform better on exams. While it sometimes requires a serious effort, you will be well-served by completing readings and assignments in a timely and conscientious fashion. *Even more than most classes, a sustained effort is immensely preferable to concentrated cramming sessions before exams.*

Grading and Assignments
Your grade in Psychology 210 will be based on the following assignments:
4 exams – 80% (20% each)
Numerous homework assignments – 20% total

Exam format: Exams will be part open-book and part closed-book. You will begin with the closed book portion; once you have finished, you can turn in that section and begin the open book portion. Once the closed-book portion has been turned in, you will not be able to go back to it. The closed-book items will be mostly theoretical, relating to the basic logic of statistical analysis, and will not require calculations. The open-book items will be numerical problems, many of which will require computation. You will be allowed to use calculators, notes and textbooks for these items, but please show all steps in the calculation of your answer so that partial credit can be given in the case of minor procedural or computational errors.

Weekly Labs: The optional lab component of the course will meet every week in the Maxey hall computer lab. These sessions will show you how to take advantage of computers' willingness to slog through millions of monotonous calculations without the smallest complaint. Specifically, we will learn how to analyze data sets using Jamovi, a powerful statistical package, hopefully eliminating the threats to sanity and leisure time once posed by large data sets. Labs will include a small assignment that needs to be completed and turned in for grading. You should be able to finish them during the lab period, but will have one week to turn them in (i.e., by the beginning of the next lab session).

Homework Assignments: Homework will be assigned on a regular basis, and involve completing problems by hand. For hand calculations, you must show your work so that the sources of procedural and mathematical errors can be pinpointed (also because I want to know you didn't just use the automated function on your fancy calculator). Homework assignments will be due one hour before the next class meeting (you can submit them online via canvas).

Grading Scale: Grades will be assigned based on the percentage of all possible points earned (see above for the relative contributions of each assignment). Below are the overall performance ranges that result in various letter grades.

A	93-100%		C	73-76%
A-	90-92%		C-	70-72%
B+	87-89%		D+	67-69%
B	83-86%		D	63-66%
B-	80-82%		D-	60-62%
C+	77-79%		F	Below 60%

The top 10 reasons to become a statistician:

10. In statistics, deviation is expected.

9. It's your lifelong ambition to be wrong 5% of the time.

8. After two hours at a statistics conference, you feel like James Dean.

7. Nobody else will want your job.

6. Wait… Statistic? I thought you said sadistic.

5. Finally understand what snooty baseball fans mean by "on base percentage"

4. Gain a .002% edge at Las Vegas blackjack table, walk away with crisp new $5 bill.

3. A bulging middle and skinny ends are considered "normal".

2. Can claim that 3 Ds out of 5 classes is "not significant"

And the number one reason to be a statistician…

1. Accounting would just be too exciting.

Some important class policies you'll want to know about:

Late Assignments:

I like to think I'm a reasonable fellow, so I'm not against granting deadline extensions from time to time. Here are my guidelines:

1. Extension requests made 1 week (or more) before the due date are almost certain to be granted, without penalty, provided that
      a) the conflict is a reasonable and legitimate one, and
      b) you haven't requested an extension for every assignment all semester long.
After all, Wally didn't just fall off the turnip wagon yesterday. (No, the turnip incident was *years* ago).
In short, make your requests as early as possible, and don't abuse my generosity.

2. Within one week (7 calendar days) of the deadline, extensions <u>may</u> still be granted, subject to the following (no exceptions).
      a) If supported by the Dean of Students, there will be no late penalty.
      b) If not, there will be a penalty of 5% per calendar day (e.g., a score of 96% would become a 91%, then an 86% and so on for each day late).

In other words, plan your semester early. Identify your busy weeks early on and get the "free" version of the extension, rather than losing 5% or more. If you're unexpectedly abducted by howler monkeys, the Dean and I will understand. If you simply forgot you had 3 other assignments due tomorrow, we're less forgiving.

Attendance:

If you must miss class because of some commitment that can't be rescheduled, that's fine. I reckon you're a grown-up and can manage your own affairs. Check with me to make sure you didn't miss any important announcements and collect any handouts. Re-read the assigned chapters and ask about any questions you might have. I also recommend borrowing class notes from that attractive classmate you've been dying to meet. Here's your opener: "Herbranson doesn't give out his lecture notes (I know, right?). Can I borrow yours?". From there you're on your own. Good luck. Make eye contact (but not too much), modulate your voice, and remember to smile.

Tentative Schedule of Topics and Assignments:

Readings are from the Bluman text, and should be completed prior to the class meeting for each date listed. Lab topics are also listed here, for those enrolled in the optional lab section (Psyc 210L)

** Bring your textbook to class
* Bring your stats tables (or your textbook) to class

T, 1-17	Measuring psychological variables	Chapter 1
Lab	Data collection and entry	
Th 1-19	Exploratory data analysis & graphs	Chapter 2
T, 1-24	Descriptive statistics	Chapter 3
Lab	Stats software and other windows programs	
Th, 1-26	Basic rules of probability	Chapter 4
T, 1-31	The binomial distribution	Chapter 5
Lab	Exploratory data analysis & Z-scores	
Th, 2-2	Catch-up and prepare for exam	
T, 2-7**	**Exam #1**	
Lab	Binomial Tests	
Th, 2-9	The normal distribution	Chapter 6
T, 2-14*	Confidence intervals	Chapter 7.1-7.2
Lab	Confidence intervals	
Th, 2-16*	Single sample t-tests	Chapter 8.1-8.3
T, 2-21*	Paired samples t-tests	Chapter 9.1-9.3
Lab	Paired samples t-tests	
Th, 2-23	**No Class: Power and Privilege Symposium**	
T, 2-28*	Independent samples t-tests	Chapter 9.1-9.3
Lab	independent samples t-tests	
T, 3-2*	Catch up and prepare for exam	
T, 3-7**	**Exam #2**	
Lab	**No lab**	
Th, 3-9*	Chi-square goodness of fit	Chapter 11

Spring break March 13 to March 24

T, 3-28	Chi-square test for independence	Chapter 12.1
Lab	Chi-square tests	
Th, 3-30**	Oneway ANOVA	

T, 4-4**	Post-hoc tests for ANOVA	Chapter 12.2
Lab	ANOVA	
Th, 4-6**	Two-way and factorial ANOVA	Chapter 12.3
T, 4-11	**No class: Whitman Undergraduate Conference**	
Lab	**No lab: Whitman Undergraduate Conference**	
Th, 4-13	**No Class (Professor is away at a conference)**	
T, 4-18**	Catch up and prepare for exam	
Lab	Factorial ANOVA	
Th, 4-20**	**Exam #3**	
T, 4-25	Correlation	Chapter 10.1-10.3
Lab	Correlation and regression	
Th, 4-27	**No Class (Professor is away at a conference)**	
T, 5-2	Simple regression	Chapter 10.1-10.3
Lab	Multiple regression	
Th, 5-4	Catch up and prepare for final exam	

Thursday, 5-11** Exam #4 (Non-cumulative) 2:00-4:00 pm

Some not so commonly asked questions...

Q: I hate this! How do I withdraw?
A: Students may drop without record until February 24th. If you plan to drop this class, please do so as quickly as possible so that others may register. After that date you may withdraw until April 8th, and doing so will leave a nifty "W" on your transcript. I think it's for "Wally", to help you remember me.

Q: Is attendance required?
A: Yes. You should plan to be in class each scheduled class day. Of course, I will gladly accommodate excused absences according to College policy (for field trips, competitions, illnesses and so forth). I also realize that life can be chaotic and unpredictable, so you can miss up to 3 class periods without penalty. If you do miss class for any reason let me know (preferably ahead of time) so that I can respond appropriately to your absence (ie, not organize a search party or alert the College's response system). Also note that to receive a passing grade, a student cannot miss more than 20% of class meetings.

Q: I think I'm going to have smallpox on several critical dates this semester. Can I schedule makeups?
A: Notify me as soon as you realize there will be a serious conflict. Makeups can be arranged for *legitimate* and *properly documented* excuses (i.e., serious illnesses, natural disasters and the like, with a corresponding doctor's note, CNN footage, subpoena, etc.) Note: The big wedding on Days of our Lives is not a serious conflict. If it's that important I'll help you track down a recording. Also see the late assignment policy elsewhere in the syllabus.

Q: I'm nervous about the upcoming exam. Help!
A: This is normal, but if you take a measured approach I can assure you, you'll do fine. My best advice is to stay on top of material as we cover it (rather than procrastinating and trying to cram immediately before). I will also distribute some study questions in advance to help you assess where you're at, and if you need to review anything specific.

Q: Dude, I bombed that first exam... What can I do?
A: I don't offer extra credit, but keep in mind that the remaining assignments (over 80% of your grade) should provide a good opportunity to correct a rough start.

Q: I have no idea what you were talking about last week…
A: Please feel free to ask questions during class sessions and let me know if I'm moving too quickly or am not explaining something clearly - It's difficult for me to know what you're experiencing in class. I'm also glad to take some time at the beginning of class to clarify points from previous lectures or from the text.

Q: Do I really need to be here for the final during finals week?
A: Only if you want points for it.

Q: Is there anything the Government wanted to make sure you had on your syllabus, in an oddly precise form?
A: Yes. I'm so glad you asked.
In accordance with the College's Religious Accommodations Policy, I will provide reasonable accommodations for all students who, because of religious observances, may have conflicts with scheduled exams, assignments, or required attendance in class. Please review the course schedule at the beginning of the semester to determine any such potential conflicts and let me know by the end of the second week of class about your need for religious accommodations. While I am happy to provide such accommodations, I understand that asking a faculty member for assistance can be intimidating; if that's the case, you can contact your academic advisor or Adam Kirtley, Whitman's Interfaith Chaplain, for support in making this request. If you believe that I have failed to abide by this policy, here is a link to the Grievance Policy, where you can pursue this matter:
https://www.whitman.edu/human-resources/grievance-policy