STATISTICAL METHODS IN PSYCHOLOGY

PSY 302 Winter 2019   Straub 245

M/W 10-11:20am CRN: 26714
M/W noon-1:20pm CRN: 25928
http://canvas.uoregon.edu

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Course Description

Statistics are central to research in many sciences, including psychology. Statistical analyses help to answer the empirical questions that researchers have, allowing them to evaluate data for patterns and to make conclusions. Statistics are central to everyday life as well. We use them to predict the weather, determine the price of insurance, see trends in voting, predict disease trends, make money on the stock market; the examples go on and on. Understanding the concepts behind statistics will help you to see the world more rationally and perhaps make better decisions.

This course is the second course in the PSY 301-303 sequence for psychology majors. In PSY 301, you built critical thinking skills and gained an understanding of how knowledge is generated in psychological research, which has prepared you for acquiring data analysis skills in PSY 302. In PSY 303 you will be using the skills you gained in PSY 301 and PSY 302 to design, implement, analyze, draw conclusions from, write up, and present scientific research in psychology.

Course Objectives

- Understand the statistical analyses of others as presented in journals or reports.
- Select and perform the correct statistical analysis, by hand (for basic statistics) or using a computer software program.
- Articulate basic principles of statistical inference and sampling.

REQUIRED MATERIALS

LaunchPad for *Corty: Using and Interpreting Statistics (3rd edition)*:
   This is an online program that you will use to access the eBook version of the textbook and complete homework assignments. **Purchase is required.** The most economical is to purchase the digital access (that includes the e-textbook + LaunchPad) via the Duck Store. We negotiated better pricing and longer access than you would be able to get elsewhere. **You can get 3 weeks of free trial access before you buy.**

Textbook: *Corty: Using and interpreting statistics (3rd edition).*
   This is bundled with LaunchPad as an e-book. **A physical copy of the textbook is optional.** If you prefer a physical textbook, you can get the best price for a loose-leaf version in our Duck Store, plus it will come with the required digital access. Also, if you have another statistics for psychology textbook available, any edition, it most likely covers the same topics – just check the table of content. Given that the digital access code is the most important for this class, textbook rentals (that rarely come with a working access code) are likely not cost-effective.

iClicker: If you do not own one already, you will need to purchase or borrow an iClicker for use in class. It will be used for class participation. **Required.**

Calculator: You will need a calculator for in-class work. It does NOT need to be a graphing calculator. Please bring it to class.

COURSE EXPECTATIONS

It is the policy of the University of Oregon to support and value diversity, and I expect you to treat your fellow students, your TAs and your instructor with respect.

This course promotes active learning through discussion, solving problems, and computer exercises. In many ways the instructor and TAs will act as coaches, but ultimately, it is you who must work to learn the concepts and demonstrate your learning. It is our goal to help you achieve this. Ask questions. Take notes. Go to office hours. We sincerely want all students to succeed. If problems arise, do not wait until the end of the term before seeking help, it may be too late.

The course includes traditional lecture meetings and weekly lab meetings. Attendance at all lectures and labs is **mandatory** and *essential* to your success in this course. Participation will be tracked using iClickers in lecture. As a courtesy to your instructors and to your fellow classmates, please arrive on time for class and stay for the duration of the class period. Getting up in the middle of class is very disruptive. Please turn off cell phones and any electronic devices at the beginning of class. When in class, you should stay engaged with the material. Be attentive (i.e., no texting, watching videos, web-surfing, Facebook, etc.). Come **prepared** to class. Do the reading prior to class, think about what you read, and bring questions if you have them. You will not do well on exams if you do not keep up with the reading. **Do the practice quizzes in your textbook/LaunchPad, and if you find you haven't completed them successfully, read through the material again.**

HOW YOU WILL BE GRADED

Grades will be distributed as follows:

A+ 97-100%   A 93-96.9%   A- 90-92.9%
B+ 87-89.9%   B 83-86.9%   B- 80-82.9%
C+ 77-79.9%   C 73-76.9%   C- 70-72.9%
D+ 67-69.9%   D 63-66.9%   D- 60-62.9%
                  F 0-59%

Grade Components

- 🔵 Attendance
- 🟢 SPSS HW
- 🟡 LaunchPad HW
- 🟠 Online Quizzes
- 🔴 Midterms
- 🟣 Final Exam

10% · 15% · 15% · 10% · 30% · 20%

Attendance/Participation (10%)

To get participation credit, you must participate in *ungraded* class exercises using your iClicker. While you get 1 "free" missed lab and 1 "free" missed class, you shouldn't use them unless absolutely necessary. If you skip class or lab, you will miss important information. **You are required to have an iClicker and register it on Canvas *by the start of Week 2*, or you will begin to lose attendance points.**

Homework (30% of grade)

Homework has two components: **LaunchPad and SPSS**. Assignments are due each Sunday by 11:59pm, electronically. Please do not confuse 'DUE DATE' with 'DO DATE'. The homework each week will have several components, and you should do them as early each week as possible, ideally within a day or two after the lecture to which they are related. Homework will help you to remember the material long-term, do not put it off.

- You will purchase **LaunchPad** digital access for your textbook, register, and access the assignments there. There will be at least two assignments related to each Chapter, and we will typically cover two chapters a week. Some assignments may take just a few minutes, others may take more than an hour. Plan ahead. Start early. Do the assignments to ensure you truly know the material, not just to get them done as quickly as possible. There are many great resources, videos, applets and practice quizzes on LaunchPad, in addition to the eTextbook. Explore them even when they are not formally assigned.
- **SPSS** is a statistical software widely used in psychological research**.** Each week (except week 5), you will download an SPSS worksheet from Canvas with analyses to complete and questions to answer. Copy and paste relevant SPSS output into the document and upload back to Canvas. For help with Canvas submissions, see https://blogs.uoregon.edu/canvas/support/ or ask your lab instructor. SPSS assignments will lose 10% of points every day they are late, including weekend days, starting at 11:59pm *sharp* on Sundays. **Note** that SPSS can only be accessed via computers in Straub and a few other computer labs around the UO, including Library computers. There is a computer lab in Straub 237A that is open 10am - 5pm Monday through Friday. Peer tutors for PSY 302 will be also available in that room during most of those hours.
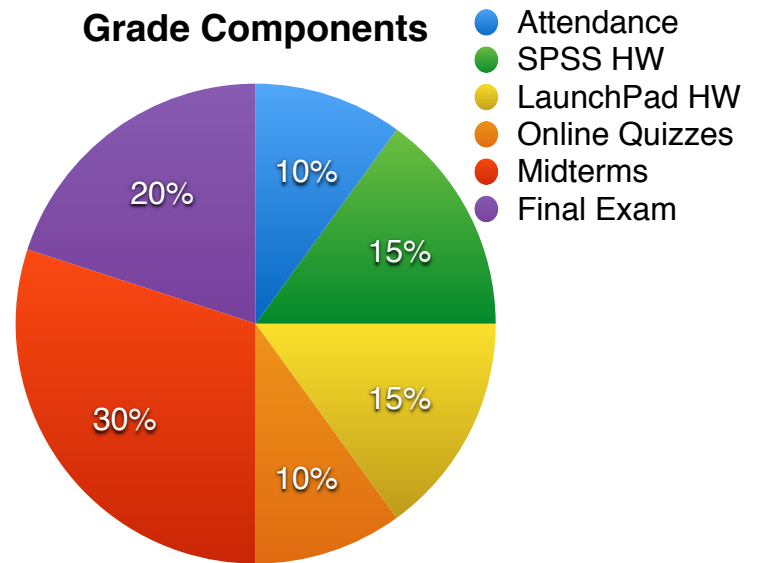
Quizzes and Exams (60% of grade)

There will be 2 online quizzes (each worth 5% of your grade), 2 in-class midterms (each worth 15% of your grade) and a final exam (20% of your grade). Quizzes and exams will be in multiple-choice or short-answer format, and will cover all material since the beginning of the term (cumulative), although most questions will focus on new material since the previous quiz/exam. Exams will focus on **conceptual** understanding of the material, with a few simple calculations by hand. The final exam will be cumulative. A major component of the final will be selecting the appropriate statistical test to answer a given research question. Knowing when to use which statistical test (i.e., how to appropriately analyze your data) is one of the fundamental goals of this course.

STUDENT WORKLOAD

When you complete this course, you will earn 4 credits toward your degree. According to University principles governing credit and contact hours, each credit equals 30 hours of work for the term. Four credits are thus equivalent to 120 hours of work in total, or 12 hours per week for 10 weeks. You will spend 4 hours in class and lab each week. The other 8 hours should be spent reading, studying, and completing homework assignments

Access and Accommodation
If you have a documented disability and anticipate needing accommodations in this course, please email or meet with me as soon as possible. Also, please request that a counselor at the Accessible Education Center (uoaec@uoregon.edu, tel. 541-346-1155) send a letter verifying your disability and needed accommodations. For a list of resources provided by the Accessible Education Center, please see aec.uoregon.edu.

Students for whom English is a Second Language: If you are a non-native English speaker and think you may have trouble in this course due to language difficulties, please see me as soon as possible to make any necessary arrangements. If you need to use a dictionary for in-class exams, you must ask to have your dictionary checked by me or one of the GTFs prior to the exam. Electronic dictionaries are not permitted.

Academic Integrity

Academic dishonesty in any guise, including plagiarism, fabrication, and cheating, will not be tolerated. All work submitted in this course must be your own and produced exclusively for this course. **Cheating** is defined as providing or accepting information on a quiz or exam, plagiarism or copying anyone's written work, or allowing someone else to copy your work. In addition, lying to try to get points (e.g., lying about having turned in an assignment on-time) is considered academic dishonesty and will be treated as cheating. Consequences of academic dishonesty range from receipt of a failing grade on the assignment to an F in the course. All violations will be taken seriously and noted on student disciplinary records. For further information, refer to the University Student Conduct Code.

http://dos.uoregon.edu/conduct.

COLLABORATION

We strongly encourage collaborative learning, but you must produce (and we must assess) individual work. Discussing homework with other students and instructors is encouraged, as are homework and study groups. Talking over problems and reworking them when you get different answers promotes deeper understanding of concepts. However, each student must submit individual homework assignments (i.e., *written independently with no word-for-word copying*). You also must show your work for hand calculations. Thus, while we encourage you to work together to solve problems and check answers, the actual writing of answers needs to be done independently. No collaboration is allowed on the exams (see Academic Integrity).

Sounds good, but do I have to do math?
This class both is and is not a math class. While math is involved, the majority of it is fairly simple. The theoretical concepts of this class are much more important, and often more difficult. If you are mathphobic, do not fear. Once you get the concepts the mathematics will be straightforward.

HOW TO SUCCEED IN THIS COURSE!

1. **Keep up!**
   - Read before class so you are prepared and ready to participate and get the most out of lecture.
   - Complete homework on time. If you fall behind, it is harder to focus on the new material.
   - Don't try to cram before quizzes and the final exam. Conceptual understanding cannot be crammed. Learning happens best when it is *distributed over time.* Do a little work every day.
   - Don't give up when you are stuck! Keep at it, and ask for help.

2. **Show up!**
   - Come to each and every class and lab.
   - Lab sections are NOT optional, and to complete SPSS homework assignments, you will need content that will be covered only in lab.
   - Go to office hours when you need help. We hold these hours for YOU.

3. **Be active!**
   - Actively participate in your learning and actively engage in the course content.
   - Use the learning checks in your textbook to assess your comprehension.
   - Do the exercises in class and work along with your instructor.
   - Ask questions. Please speak up! This is the only way we will know when something is not explained clearly, and chances are that half the class has a similar question.

Week	Date	Topic	Read	HW due by Sundays 11:59pm
1	M 1/7	Introduction; variables& their visualization	Syllabus	Register i-clicker Practice SPSS HW 1 LaunchPad Chapters 1-3
		Lab W1: Intro, variables		
	W 1/9	Central tendency, variability	Ch. 1-3	
2	M 1/14	Z-scores & the normal distribution	Ch. 4	SPSS HW 2 LaunchPad Chapters 4-5 Practice Quiz Ch.1-5 Quiz 1 (Ch. 1-5)
		Lab W2: means, variability, z-scores		
	W 1/16	Sampling & Confidence Intervals	Ch. 5	
3	M 1/21	No class, MLK day		LaunchPad Ch. 6
		No lab: Quiz 1 due Monday		
	W 1/23	Introduction to hypothesis testing	Ch. 6	
4	M 1/28	One-sample t-test	Ch. 7	SPSS HW 3 LaunchPad Ch. 7 In-class Midterm 1 (Ch. 1-7) on Wed
		Lab W4: z-test, one-sample t-test		
	W 1/30	In-class MIDTERM 1 (Ch. 1-7)		
5	M 2/4	Independent-samples t-test	Ch. 8	SPSS HW 4 LaunchPad Ch. 8-9 Practice Quiz Ch.6-9
		Lab W5: Independent samples t-test		
	W 2/6	Paired t-test	Ch. 9	
6	M 2/11	One-way ANOVA	Ch. 10	SPSS HW 5 LaunchPad Chapters 10, 12
		Lab W6: One-way ANOVA		
	W 2/13	Factorial ANOVA	Ch. 12	
7	M 2/18	Catch up & Review		SPSS HW 6 In-class Midterm 2 (Ch. 1-10,12) on Wed
		Lab W7: Factorial ANOVA		
	W 2/20	In-class MIDTERM 2 (Ch. 1-10,12)		
8	M 2/25	Repeated-measures ANOVA	Ch. 11	SPSS HW 7 LaunchPad Chapters 11 & 13
		Lab W8: Repeated-measures ANOVA		
	W 2/27	Correlation	Ch. 13	
9	M 3/4	Regression	Ch. 14	SPSS HW 8 LaunchPad Ch. 14 Quiz 2 (Ch. 11-14) due Sunday
		Lab W9: Correlation, regression		
	W 3/6	Catch up & Review		
	Sun 3/10	Quiz 2 due Sunday		
10	M 3/11	Chi-square test	Ch. 15	SPSS HW 9 LaunchPad Chapters 15&16
		Lab W10: Chi-square test		
	W 3/13	Review: Which test?	Ch. 16	
11	Tu 3/19 We 3/20	10:15am CUMULATIVE FINAL EXAM M/W 10am class on Tuesday 3/19 M/W 12pm class on Wednesday 3/20		Cumulative Final Exam

The course schedule may change, but quiz, exam, and homework due dates will not change unless absolutely necessary.