

PSYCHOLOGY 302 – STATISTICAL METHODS IN PSYCHOLOGY

Winter 2013

Lecture: TR 8:30am-9:50 am Straub 146

Instructor: Amber Gayle Thalmayer, M.S.

athalmay@uoregon.edu // Straub 309 // Office Hours: T 12-1, R 1-2

Labs: 180 Straub Hall // Lab Instructors:

Philippe Bou Malham Thursday 10:00–11:20 & 12-1:20 labs Email: philippe@uoregon.edu Office Hours: W 2-4, Straub 320	Junaid Merchant Thursday 2:00-3:20 & 4:00–5:20 labs Email: junaid@uoregon.edu Office Hours:
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Straub Computer Labs are open M-F (times posted on doors). SPSS also available on Knight Library computers.

COURSE OVERVIEW

Course Objectives: At the end of this course you will be able to read a description of a research study and identify the appropriate statistical technique needed to answer the research question. Using hypothesis testing procedures, you will be able to conduct this test (both by hand and using statistical computing software) and draw a conclusion (and write it in APA style) based on your analyses.

Course Description: This course will introduce you to descriptive and inferential statistics, teach you how to calculate statistics and analyze data using a computer statistics package, and improve your ability to understand and evaluate statistical information reported in primary research articles.

Although you will be learning how to do statistical calculations by hand, this course is different from courses taught in mathematics departments. The focus in this class is on conceptual understanding of statistics. In the past, students have generally found that the “number crunching” in this class is relatively easy. It is the conceptual understanding of statistical methods that is more difficult. Once you understand the concepts, you will probably have little trouble doing calculations.

Course Design: The course promotes active learning through discussion, solving problems, and computer exercises. In many ways the instructor and TAs will act as coaches – ultimately, you must actively internalize the concepts. The course encourages teamwork among students, instructor, and TAs.

Responsibilities: If you complete this course, you will earn 4 credits toward your degree. According to University principles governing credit and contact hours, each credit means 30 hours of work. Thus, 4 credits are equivalent to 120 hours of work over 10 weeks, or 12 hours/week. You will spend 4 hours in class and lab each week and should plan to spend 8 hours/week reading, studying, and completing assignments outside of class.

COURSE REQUIREMENTS

1. Attendance. Attendance is worth .25 for each day. You must arrive no more than 20 minutes late for credit.

2. Homework. Assignments are due **Wednesdays at 6 pm, electronically**. Homework has two components:

- Aplia software questions. These become unavailable when due, so **cannot be turned in late**.
 - Make sure to register with Aplia using the same name that you use on Blackboard for grading
 - You will get three attempts at the right answer. Your score will be the average of all attempts.
- The SPSS portion of the homework should be completed as a document – copy and paste in any SPSS output you include. To turn it in, go to the course Blackboard page, 'Assignments.' This will lead to a page where you can upload your document.

- For help, <http://library.uoregon.edu/scis/blackboard/faq/students/s9.html> or ask lab instructor
- 10% reduction in points available for every day late (for SPSS portion only – no late Aplia).

3. Quizzes. Quizzes will cover all material since previous quiz, and will be multiple choice. You will have 40 minutes to complete each quiz, 8:30-9:10, with lecture starting at 9:10. You may sit quietly or take a break if you finish early, but do not leave the room until I have your quiz.

4. Final Exam. 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.

5. Materials.

- **Text:** Gravetter & Wallnau, *Essentials of Statistics for the Behavioral Sciences*, 7thed. Included with Aplia as e-book -- hard copy not required.
 - Read assigned chapters before class and do “Learning Checks”. Reread if you have trouble on a Learning Check. The second time, you will understand more.
- **Aplia** is an online program you will use to complete HW assignments. Purchase is required for this course.
- A **calculator** that can do single variable statistics. No need for graphing. **Bring calculator & text to class.**

SPECIAL NEEDS

Students with Disabilities:

If you have a documented disability and need accommodations, let us know ASAP. Please let us know in advance even if you are not sure that your disability will require accommodation in this course. Students who are experiencing learning difficulties are encouraged to consult the Accessible Education Center (164 Oregon Hall; 346-1155; <http://aec.uoregon.edu/>). Without documentation, accommodations are made at discretion of instructor. **Other Students:** If you are repeating this class, or have other circumstances that might affect your ability to devote time to the class, please let us know so we can discuss strategies to promote your success. Planning ahead can make a big difference in your final grade.

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 a separate homework which was *written independently* (no word-for-word copying), and you must show your work for hand calculations. Thus, while you should work together to solve problems and check answers, the actual writing of answers needs to be done independently.

Your work on the Quizzes and Final must be your own. Copying the work of others on these is cheating, and will lead to an F for the course. (The University may impose additional penalties in accordance with the student conduct code.) Quizzes are a reflection of individual work--rely on your own knowledge only.

THREE WAYS TO DO WELL

1. **Keep up and keep trying.** Read assigned chapters early and often. Keep slogging through even if you only understand half of what you read. Persistence really will pay off – concepts will sink in. Come to lecture and lab. Start homework immediately so you finish in time to compare with others. Turn it in on time.
2. **Work hard on understanding early material.** If you get the concepts in the first half of the term, the second half will deepen your understanding. If you don't grasp concepts in the first half, the second half may seem like a maze of confusing techniques. Seek help early if you are feeling lost.
3. **Stay in touch and speak up.** We want you to do well! Ask questions in class and lab. Forming a clear question helps you discover what you do and do not understand, which is vital to mastering this subject.

TOP FIVE PITFALLS

1. **Concluding that struggling in the course means you don't/can't get statistics.** This course draws on more than one type of skills – math plus conceptual understanding. Almost every student struggles with some element of the course. Failing on something is an indicator that you need to put in more effort – not that you aren't smart enough. We do our best to teach in a way that meets your needs—if you let us know when you don't understand something, we can better understand what those needs are.
2. **Passive listening and reading.** Write, draw, figure. Think with a pencil in hand. Turn the concepts into something you do. To succeed, you must be able to explain and execute.
3. **Beginner's luck.** Doing it right once doesn't mean you can repeat the trick. Getting it wrong helps you understand how the process works. Mistakes help you learn.
4. **Trying to cram.** You can cram content, but skills don't compress. Don't fall behind; it's very hard to catch up.
5. **Giving up because you get stuck.** Everyone gets stuck. Math is all about getting stuck and unstuck. When this happens, play around. Try a new tactic. *Ask for help.*
6. **Spectator overconfidence.** Watching someone go through the steps is a starting point, but you have to get in the pool to learn how to swim.

GRADING

Your *final course grade* is based on the following points (of 100):

36	Score on 9 homework assignments (4 points each)
40	Score on 5 quizzes/exams (8 points each)
19	Cumulative final
5	Attendance (.25 point for each day of class)

Final grades will be based on percentage of total possible points earned, distributed as follows:

A = 93-100%	B+ = 87 – 89.9%,	C+ = 77-79.9%	D+ = 67-69.9%	F = > 60%
A- = 90-92.9	B = 83-86.9	C = 73 – 76.9%	D = 63 – 66.9%	
	B- = 80-82.9%	C- = 70-72.9%	D- = 60-62.9%	

If taking Pass/Fail: P = 70+, N = < 70

COURSE SCHEDULE

Schedule, homework due dates and quiz dates subject to change

Week	Date	Topic	Reading	Quiz/Assignments
1	T 1/8	Course Introduction, Key Terms		
	R 1/10	Variables, Histograms, Frequency	Ch. 1-2	
	R 1/10	Lab 1		
2	T 1/15	Central Tendency and Variability	Ch. 3-4	
	R 1/17	Z-Scores and the Normal Distribution	Ch. 5	HW1 due 1/16 6pm
	R 1/17	Lab 2		
3	T 1/22	NO CLASS		HW2 due 1/23 6pm
	R 1/24	Probability and Normal Distribution	Ch. 6	Quiz 1
	R 1/24	Lab 3		
4	T 1/29	Distribution of Sample Means	Ch. 7	HW3 due 1/30 6pm
	R 1/31 10/16	Hypothesis Testing with z	Ch. 8	
	R 1/31	Lab 4		
5	T 2/5	The one-sample t-test	Ch. 9	Quiz 2
	R 2/7	Independent samples t-test	Ch. 10	HW4 due 2/6 6pm
	R 2/7	Lab 5		
6	T 2/12	Related samples t-test	Ch. 11	HW5 due 2/13 6pm
	R 2/14	Intro to ANOVA	Ch. 13	Quiz 3
	R 2/14	Lab 6		
7	T 2/19	One-way ANOVA		HW6 due 2/20 6 pm
	R 2/21	Factorial ANOVA	14 (428-456)	
	R 2/21	Lab 7		
8	T 2/26	Repeated ANOVA, ANOVA Review	14 (414-428)	HW7 due 2/27 6pm
	R 2/28	Correlation	15 (466-498)	Quiz 4
	R 2/28	Lab 8		
9	T 3/5	Regression	15 (498-517)	HW8 due 3/6 6pm
	R 3/7	Chi-Square	Ch. 16	
	R 3/7	Lab 9		
10	T 3/12	Which Test? Review & Recap	Pp. 614-623	HW9 due 3/13 6pm
	R 3/14	last quiz		Quiz 5
	R 3/14	No Lab		
11	3/20	Wednesday 8 a.m.		Cumulative Final