PSYCHOLOGY 302 – STATISTICAL METHODS IN PSYCHOLOGY

Fall 2013

Lecture: Mondays and Wednesdays 2:00-3:20 pm in 112 Lillis Hall
Labs are held in 271 Franklin at the designated times (see "Lab Instructor" section below)

Instructor: Kathryn Iurino, M.S.
Email: kiurino@uoregon.edu
Office: Franklin 210
Office Hours: by appointment, regular times TBA

Lab Instructor: Alex Khounlavouth, M.S.
Monday: 4:00-5:20pm
Tuesday: 10:00-11:20am
Tuesday: 12:00pm-1:20pm
Email: amk@uoregon.edu
Office: 229 LISB
Office Hours: TBA

Franklin Computer Labs are open M-F (times posted on doors). *SPSS is also available on Knight Library computers.*

REQUIRED MATERIALS

Text: Gravetter & Wallnau, *Essentials of Statistics for the Behavioral Sciences*, 8th ed. 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.**
A **calculator** that can do single variable statistics. No need for graphing. **Bring calculator & text to class.**

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/participation. You must participate using your iClicker to get credit for each day you attend. Responses to iClicker questions will not be graded for correctness.

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

- Aplia software questions. After the due date and time, these become unavailable. Therefore, Aplia HW **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. So it is in your best interest to try hard and do the best you can the first time!
- 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, 2:00-2:40, with lecture starting at 2:40. 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.

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:

35% Homework (70% of your homework grade is Aplia homework, 30% is Lab homework)

40% Score on 5 quizzes/exams (I will drop the lowest one. I use this policy so that performance on one quiz does not negatively impact your grade. Because of this, **I do not allow make-up quizzes**. If, *for whatever reason*, you miss a quiz, that is the quiz that will be dropped. *Any other quizzes you miss will result in grades of zero for those quizzes*.)

20% Cumulative final

5% Attendance/Participation (up to 2 classes can be missed without penalty)

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	M 9/30	Course Introduction, Key Terms		
	W 10/2	Variables, Histograms, Frequency	Ch. 1-2	
	10/1,10/2	Lab 1		
2	M 10/7	Central Tendency and Variability	Ch. 3-4	
	W 10/9	Z-Scores and the Normal Distribution	Ch. 5	
	10/7, 10/8	Lab 2		HW1 due 10/11 6pm
3	M 10/14	Probability and Normal Distribution	Ch. 6	**Quiz 1 (Ch. 1-4)**
	W 10/16	Distribution of Sample Means	Ch. 7	
	10/14, 10/15	Lab 3		HW2 due 10/18 6pm
4	M 10/21	Hypothesis Testing with z	Ch. 8	
	W 10/23	The one-sample t-test	Ch. 9	**Quiz 2 (Ch. 5-8)**
	10/21, 10/22	Lab 4		HW3 due 10/25 6pm
5	M 10/28	Independent samples t-test	Ch. 10	
	W 10/30	Related samples t-test	Ch. 11	
	10/28, 10/29	Lab 5		HW4 due 11/1 6pm
6	M 11/4	Intro to ANOVA	Ch. 12	**Quiz 3 (Ch. 9-11)**
	W 11/6	One-way ANOVA		
	11/4, 11/5	Lab 6		HW5 due 11/8 6pm
7	M 11/11	Factorial ANOVA	Ch.13.1, 13.3	
	W 11/13	Repeated ANOVA, ANOVA Review	Ch. 13.2	
	11/11, 11/12	Lab 7		HW6 due 11/15 6 pm
8	M 11/18	Correlation	Ch.14.1-14.5	**Quiz 4 (Ch. 12-13)**
	W 11/20	Regression	Ch.14.6	
	11/18, 11/19	Lab 8		HW7 due 11/22 6pm
9	M 11/25	Chi-Square	Ch. 15	
	W 11/27	Thanksgiving- No Class!		
	11/25, 11/26	Lab 9		HW8 due 11/29 6pm
10	M 12/2	Which Test? Review and Recap		
	W 12/4	Last Quiz		**Quiz 5 (Ch. 14-15)**
	12/2, 12/3	No Lab		HW9 due 12/6 6pm
11	**12/12**	**Thursday 3:15 p.m.**		**Cumulative Final**