Psychology 302 – Statistical Methods in Psychology
Summer 2012

Lecture: Monday - Thursday, 10:00am – 10:50am, Straub 142
Labs: Friday, 9:00am – 9:50am & 10:00am – 10:50am, Straub 180

Instructor:	**Naomi Aguiar, M.S.**
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Office hours:	Wednesdays, 11:00am – 1:00pm

In 2010, Chief Economist for Google, Hal Varian, described jobs for statisticians as the "sexiest" in the marketplace (see February 27th, 2010 issue). According to Varian, data are collected almost everywhere, but we have more data than we can possibly analyze. And, there are relatively few who people can extract meaning from the large amount of data we collect.

We are excited to offer this course because we feel it will give you a foundation of skills needed to succeed in today's economy, whether you choose to continue on in Psychology, or seek professions in other fields.

Lab instructor:	**Devin Howington**
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Office hours:	TBA

Straub Computer Lab rooms (180 and 186) are open Monday through Friday 8am – 5pm

OVERVIEW OF COURSE STRUCTURE

Course Objectives: By the end of this course, you should have a solid understanding of the ways in which statistical techniques are used in psychology. This includes the ability to understand and critically evaluate graphical presentations of data, the ability to identify the appropriate statistical approach for a given research question, and an understanding of the factors that contribute to the interpretation of a statistical test (e.g., effect sizes and statistical power). Additionally, at the end of this course, you should able to conduct statistical tests (both by hand and using statistical software) and draw the appropriate conclusions (written in APA style) based on your analyses.

Course Description: This class can be thought of as applied or conceptual mathematics. Although you will be learning how to do statistical calculations by hand, this course is very different from courses taught in mathematics departments. In the past, most students have found that the actual "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. The course encourages teamwork among students, instructor, and TA. *Although exams are to be completed individually, students are encouraged to work together on homework.*

COURSE REQUIREMENTS

1. Participation. Participation includes in-class activities. Participation points can only be gained from in-class exercises. ***You can miss up to 2 classes (for any reason) without penalization***. After two free absences, points will be deducted for each missed class. ***There are no make-up opportunities for participation points.***

2. Homework. **Hard copies** of your homework assignments are due *in lab each week* **beginning week 2** (at the beginning of your lab session). Homework will include some questions from the book, **and possibly <u>one or more "challenge" questions that ARE NOT in your book</u>.** Some problems will be completed "by hand", some using SPSS (a data analysis software package that is accessible in lab classrooms), and some using both methods. BE SURE TO PAY ATTENTION TO THE INSTRUCTIONS FOR EACH HOMEWORK ASSIGNMENT. Homework **assignments will be posted on blackboard** each week after lab. IT IS YOUR RESONSIBILITY TO DOWNLOAD, PRINT AND COMPLETE THESE ASSIGNMENTS.

<u>Turn homework in on time!</u> Homework is considered late if it is not turned in at the beginning of your lab on the day it is due. In calculating your final grade, your lowest homework score will be replaced with your highest homework score, but ONLY if you turn in all 7 homework assignments within the terms designed by the late policy.

Late work will be penalized according to the following schedule:

1 day late:	**- 2 points**	**(13/15) (86.7%) maximum**
2 days late:	**- 4 points**	**(11/15) (73.3%) maximum**
3 days late:	**- 5 points**	**(10/15) (67%) maximum**

No homework will be accepted after the 3rd day.

This policy is designed to encourage you to stay on top of your homework, as it will be vital to your success on exams, and in this course in general.

3. Exams. There will be **two midterm exams** and **one final exam**. Exams will consist of any of the following question formats: multiple-choice questions, true-false questions, and several short answer questions. The first midterm exam will include material covered in the first 3 weeks of class, and the second midterm exam will include material covered in weeks 3 – 6. **The final exam will be cumulative**, with an emphasis on material learned in week 7 and 8. You will have the entire class period to complete the midterm exams.

If you cannot make one of the midterm exams, or are unable to come to class on one of the exam days, you will be able to take a make-up midterm, which will be administered following the final exam on Thursday, August 16th at 10:15am. This is the ONLY option for making up missed exams – no exceptions! Additionally, anyone can take the make-up midterm to replace a poor score on an exam. If a midterm make-up score exceeds any other exam scores, the lowest exam score will be dropped and replaced with the make-up midterm score.

You may bring calculators on exam days, but they <u>must be basic, 5 function calculators</u>. Also, you are <u>not allowed to use cell phones</u> as calculators on quiz days. You will also be allowed to bring one page of handwritten notes. These notes must be turned in with your exam. <u>Absolutely no texting or other use of electronic devices during scheduled quiz time.</u>

4. Books & Calculator. The required text is *Statistics for the Behavioral Sciences* (Privitera, 2012). There is a website the accompanies this textbook: www.sagepub.com/priviterastats

It is free to register and includes chapter outlines, flashcards and practice quizzes. *I STRONGLY recommend using this resource to help you prepare for exams.*

Read assigned chapters **before** class and do the "learning check" sections as you encounter them. **Reread** if you encounter trouble completing these practice sections. **Bring calculator & text to class.**

COLLABORATION

Collaborative Learning:
Discussing homework with other students and your instructors is encouraged, as are homework and study groups for quizzes and exams. Talking over the problems and reworking them when you discover that others got different answers promotes deeper understanding of concepts. *However, each student must submit a separate homework that was written independently (no photocopies or word-for-word copying), and you MUST show your work for all by hand calculations.* More explicitly, you may work together to solve problems and check your answers on homework with each other, but preparing those answers for your homework and the actual writing of any verbal answers need to be done independently.

Individual Work (when Collaboration = Cheating):
Your work on the exams must be your own. Any verbal statements on homework MUST be written in YOUR OWN WORDS. If you are caught cheating, the following consequences apply:

Cheating on homework:	Cheating on an exam:
First offense: "0" on homework assignment and homework will be counted as not turned in.	An "F" in the course. Infraction will be reported to the Office of Student Conduct and Community Standards.
Second offense: An "F" in the course. Infraction will be reported to the Office of Student Conduct and Community Standards.	

The University may impose additional penalties in accordance with the student conduct code:
http://studentlife.uoregon.edu/StudentConductandCommunityStandards/StudentConductCode/tabid/69/Default.aspx

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SPECIAL NEEDS

Students with Disabilities: If you have a documented disability and may need accommodations, contact us ASAP. *There is no way we can help you if you come to us with a documented disability at the end of the term. Also, please let us know in advance even if you are not sure that your disability will require accommodation* (for example, if you have a physical disability that may require you to miss class, but you aren't sure it will). Students who are experiencing learning difficulties are encouraged to consult Disabilities Services (164 Oregon Hall; 346-1155; http://ds.uoregon.edu/).

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 now so we can discuss strategies to promote your success in this course. If you wait until you have problems in the course it may be too late to salvage your grade, but planning ahead will likely lead to success.

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GRADING

Your *final course grade* is based on the following components:

70 points	**(40%)**	Score on 7 homework assignments worth 10 points each (lowest score will be replaced with highest score <u>if all assignments</u> are turned in)
90 points	**(51%)**	Score on 3 exams worth 30 points each (there will be one make-up one midterm at the end of the term if you would like to replace your lowest exam score)
16 points	**(9%)**	Participation in in-class exercises worth .5 points per class (you can miss up to two classes without penalty)
176 total	**(100%)**	

Note that there is NO EXTRA CREDIT. Final grades will be based on percentage of total possible points earned, distributed as follows:

A 93% and up	B 83 – 86%	C 73 – 76%	D 63 – 66%	Pass/No Pass:
A - 90 – 92%	B - 80 – 82%	C - 70 – 72%	D - 60 – 62%	P: 70% and up
B+ 87 – 89%	C+ 77 – 79%	D+ 67 – 69%	F 59% or lower	N: 69% or lower

* The instructor will grant A+ grades only to students whose interest, dedication and performance is deemed exceptional.

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COURSE SCHEDULE
Schedule, homework due dates and exam dates subject to change

	Date	Topic	Readings	Assignments
Week 1	6/25	Intro, stats & research designs	Ch. 1	
	6/26	Stats & research designs	Ch. 1	
	6/27	Visual displays of data	Ch. 2	
	6/28	Central tendency & variability	Ch. 3 - 4	
	6/29	Lab 1		
Week 2	7/2	Z scores & the normal distribution	Ch. 5 & 6 (161 – 168)	
	7/3	Probability & the normal distribution	Ch. 6 (168 – 187)	
	7/4	NO SCHOOL		
	7/5	The distribution of sample means	Ch. 7	
	7/6	Lab 2		**HW 1 Due**
Week 3	7/9	Intro to hypothesis testing	Ch. 8 (225 – 235)	
	7/10	The z-test & one-sample t-test	Ch. 8 (236 – 245) & Ch. 9 (261 – 268)	
	7/11	Statistical power & effect size	Ch. 8 (245 – 255) & Ch. 9 (269 – 273)	
	7/12	Independent samples t-test	Ch. 9 (273 – 286)	
	7/13	Lab 3		**HW 2 due**
Week 4	7/16	**MIDTERM 1**		
	7/17	Independent samples t-test	Ch. 9 (273 – 286)	
	7/18	Related samples t-test	Ch. 10	
	7/19	Related samples t-test	Ch. 10	
	7/20	Lab 4		**HW 3 due**
Week 5	7/23	Intro to ANOVA	Ch. 12 (347 – 358)	
	7/24	One-way between-subjects ANOVA	Ch. 12 (358 – 379)	
	7/25	One-way between-subjects ANOVA	Ch. 12 (358 – 379)	
	7/26	One-way within-subjects ANOVA	Ch. 13	
	7/27	Lab 5		**HW 4 due**

Week 6	7/30	Two-way between-subjects ANOVA	Ch. 14	
	7/31	Two-way between-subjects ANOVA	Ch. 14	
	8/1	Two-way between-subjects ANOVA	Ch. 14	
	8/2	Correlation	Ch. 15	
	8/3	Lab 6		**HW 5 due**
Week 7	8/6	**MIDTERM 2**		
	8/7	Correlation	Ch. 15	
	8/8	Regression	Ch. 16	
	8/9	Regression	Ch. 16	
	8/10	Lab 7		**HW 6 due**
Week 8	8/13	Chi-square	Ch. 17	
	8/14	Chi-square	Ch. 17	
	8/15	Which test? Review and recap		
	8/16	FINAL EXAM & MAKE-UP MIDTERM EXAM TIME: 10:15am – 12:15pm Straub 142		**HW 7 due**