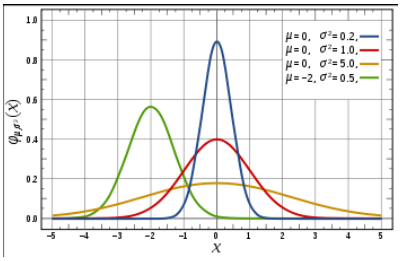
Psychology 302 – Statistical Methods in Psychology

Spring 2012



Lecture are held Tuesdays & Thursdays at 4pm-5:20 in 302 Gerlinger

Instructor:
Kara Sage, M.Ed., M.S.
Email: kara@uoregon.edu
Office: Straub 349
Office Hours: Tuesday 230-330, Wednesday 1145-1245, or by appointment

Labs are held on Wednesdays: 8:30-9:50, 10-11:20, 12-1:20 and 4-5:20 in 180 Straub

Lab Instructors:

Kim Martin (10-11:20 & 12-1:20 labs)
Email: kimm@uoregon.edu
Office: Straub 344
Office Hours: Thursday 9-11am

Jennifer Gomez (8:30-9:50 lab)
Email: jgomez@uoregon.edu
Office: Straub 497
Office Hour: Friday 8-9am

OVERVIEW OF COURSE

Course Objectives: At the end of this course you will be able to read a description of a research study and then identify the appropriate statistical technique needed to answer the research question. You will be able to identify problems and issues with data sets through exploratory data analysis. You will be able to describe and evaluate data using summary statistics. You will be able to use inferential tests and measures of effect size (both computing by hand and using statistical software) to answer research questions and draw conclusions (written in APA style) based on your analyses. Using the knowledge you gain here, you should be better equipped to evaluate statistical information reported in popular media as well as in primary research articles.

Course Description: This class both is and is not really a math class. Although you will be learning how to do statistical calculations by hand, this course is very different from courses taught in mathematics departments. The focus in this class is on a conceptual understanding of statistics and the application thereof to psychological science. In the past, most students have found that the actual "number crunching" in this class is relatively easy. It is this conceptual understanding of statistical techniques that is emphasized even when it comes to actual formulas. Once you understand the concepts, you will probably have little trouble doing calculations.

Books & Materials: The required text is by Privitera (2012), *Statistics for the Behavioral Sciences*. You should have also received a StatLab registration code with your book – this is for an online laboratory that allows you to participate in classic behavioral experiments, generate data, and then walk through the analysis of your data. Please read assigned textbook material **before** class. You will also need a hand-held calculator, nothing fancy (i.e., graphing capabilities) necessary. **Bring book and all materials to lecture and lab.**

COURSE REQUIREMENTS

Participation via in-class responses (5 % of Grade): Participation includes in-class activities designed to increase understanding of concepts introduced in reading, topics discussed that day, and reviewing previous concepts. Participation points will not be based on whether you got the right answer, but only on whether you tried. There is no opportunity to make-up these points if you are absent. At the end of each class session, you will turn in your in-class responses. Students turning in at least 15 of these participation responses will receive full participation credit. Points will be deducted thereafter.

Reading Responses (5% of Grade): Starting in Week 2, you will turn in a weekly typed response to the assigned reading – hard copy in class on Thursdays. Responses must (1) identify what you think were the three most important points in the reading (2) state one specific question or issue you would like clarified. Give page numbers. Example of a SPECIFIC question: "On p. 368, it says that the Scheffe test is extremely cautious. Does this mean it is better than the Tukey test? If not, how do we choose?" Example of a VAGUE non-question "I don't understand chapter 12." Specify WHAT you don't understand. Keep responses *short, no longer than 1 page*. Over the weekend, I will go over these reading responses to pick out points of mutual confusion, and will then clarify these points in class. This will allow us to review any material that might be particularly challenging.

Online Learning Checks (5% of Grade): You will need to complete an online lab via the StatLab Online tool that came with your textbook during weeks 1-7 and 9. For weeks 8 and 10, you will complete a comparable Blackboard quiz covering the material for that week (as StatLab does not offer labs on these topics). You must complete this online learning check each week by Friday 11:59pm to earn credit.

Note: For week 1, you will walk through the StatLab registration process in your lab section, as well as work on the first StatLab assignment so that you can become familiar with the process and make sure you know where to find and complete the labs. Make sure to bring your registration code to this first lab!

Also note that these labs must be completed in one sitting (e.g., you can't save and go back later). You will find that SPSS will be a very helpful tool for completing most of these labs in a quick fashion. These online labs are nice in that they provide hints on how to find each required answer, and you must determine the correct answer for each question in succession before moving on to the next question. The purpose of these labs is to provide you with instant feedback and to give you sense of how well you grasp that week's material. They are an excellent way of practicing the various statistics that you'll need to know for exams and future psychology courses.

Homework (30% of Grade): Homework assignments are due **each Friday by 12pm** on Blackboard. To submit, go to "Homework" in the side menu on Blackboard, click on the homework number (e.g., "Homework #1"), and submit your file by attaching it and then clicking the submit button. You will need to produce a typed document for submission. Homeworks will include conceptual questions as well as problems to be completed by hand, SPSS, or both. **Turn homework in on time - Late Homework Policy: 25% deduction for 1 day late, 50% for 2 days late, not accepted 3 or more days late.** Turning in all homework on time earns the benefit of dropping your lowest homework score. Scheduling and content of homework are subject to change at the discretion of the instructors.

Your lab instructor will be grading your homework. In order to help you utilize feedback effectively, the homeworks will be graded with comments by the following lab section on Wednesday. You will be able to view these comments on Blackboard, by clicking on your score in your grades section. Receiving this feedback by Wednesday gives you some time to review any comments, ask your lab instructor any

questions, and incorporate the feedback into your following homework. The lab instructors have office hours on Thursday and Friday in order to help you with the homework (in addition to answering any questions you have about the material or class). They are a great resource – please use them!

Discussing homework with other students and your instructors is encouraged. However, each student must submit a separate homework, *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** answers need to be done independently. It is at the lab instructors' discretion to penalize outright copying.

Exams (55% of Grade): There will be two **non-cumulative in-class exams (April 19th and May 17th)** and one **cumulative final exam** given during the final exam period, **Thursday June 14th 1-3pm**. For these exams, you will be allowed *one side* of an 8 x 11 page for *handwritten* notes. This must be a notes page of your own creation – e.g., photocopying of each other's notes is *not* allowed. *You will be required to turn in your notes page at the end of each exam.*
***What to bring to exams:* #2 pencil, eraser, calculator, handwritten notes page
(Scantron forms will be provided by Kara)

SPECIAL NEEDS

Students with Disabilities: If you have a documented disability and may need accommodations, contact me ASAP. Please let me 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). Students who are experiencing learning difficulties are encouraged to consult Disabilities Services (164 Oregon Hall; 541-346-1155; disabsrv@uoregon.edu; http://ds.uoregon.edu/). Without documentation, accommodations are not guaranteed and are to be made at the discretion of the instructor.

Student Athletes: You must let me know during the first week of classes if you will miss class due to travel with a UO athletic team and require accommodation. Requirements for the course will still be the same, however minor scheduling accommodations may be made (e.g., taking an exam a few hours early) if planned well ahead of time.

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 me know so I can discuss strategies to promote your success.

GRADING

Final course grades are based on the following:

5% Participation

5% Reading Responses

5% Online Learning Checks

30% Homework Assignments

30% 2 exams (15% each)

25% Final exam

Final grades will be based on the weighted percentages of total possible points earned and assigned letter grades as follows:

Course grades based on percentage of points			
	Percent		Percent
A	93-100	C-	70-72.9
A-	90-92.9	D+	67-69.9
B+	87-89.9	D	63-66.9
B	83-86.9	D-	60-62.9
B-	80-82.9	If taking Pass/Fail	
C+	77-79.9	NP	< 70
C	73-76.9	P	70

COURSE SCHEDULE

Reading responses due (as typed hard copy) in class on Thursdays, weeks 2-10.
Homeworks due (via Blackboard submission) by Fridays 12pm, weeks 1-10.
Online Learning Checks due by Fridays 11:59pm, weeks 1-10.
Exams will be on: April 19th, May 17th, and June 14th.

Week 1 (April 2nd-6th): Introduction, Graphs and Distributions
Reading: Chapters 1 & 2; Lab 1: Intro to SPSS, Frequency Distributions, and Graphs

Week 2 (April 9th-13th): Central Tendency, Variability
Reading: Chapters 3,4 Lab 2: Central Tendency and Sampling

Week 3 (April 16th-20th): Z-Scores, Sampling Distributions; **Exam #1 on April 19th**
Reading: Chapters 6, 7; Lab 3: Z-Scores

Week 4 (April 23rd–27th): Intro to Hypothesis Testing, Z-test, Confidence Intervals
Reading: Chapter 8; Lab 4: Z-tests, Confidence Intervals

Week 5 (April 30th–May 4th): One-Sample & Independent-Samples t-tests
Reading: Chapter 9; Lab 5: One-Sample and Independent-Samples t-tests

Week 6 (May 7th-11th): Related-Samples t-test, Confidence Intervals
Reading: Chapters 10, 11; Lab 6: Related-Samples t-test

Week 7 (May 14th-18th): One-Way ANOVA; **Exam #2 on May 17th**
Reading: Chapters 12, 13; Lab 7: One-Way ANOVA

Week 8 (May 21st-25th): Two-Way ANOVA
Reading: Chapter 14; Lab 8: Two-Way ANOVA

Week 9 (May 28th–June 1st): Correlation & Regression
Reading: Chapters 15 (only pages 472-490), 16; Lab 9: Correlation & Regression

Week 10 (June 4th–June 8th): Chi Square
Reading: Chapter 17; Lab 10: Chi Square
The last day of class will be your June 6th Wednesday lab section – no class on Thursday June 7th

Finals Week: *cumulative final exam*, Thursday June 14th, 1-3pm
(Kara will hold office hours during finals week – exact times TBA - to help students prepare for the final exam)

HOMEWORK ASSIGNMENTS and ONLINE LEARNING CHECKS

On homeworks: ** means to use SPSS, include the appropriate SPSS output in your homework, and include an APA style conclusion sentence where applicable in addition to answering all parts of the question

Week 1:

Homework #1: Chapter 1 problems: 1, 15, 19, 25; Chapter 2 problems: 13, 27, 31**
Online Learning Check: StatLab - Frequency Distribution (Speeded Reaction Time)

Week 2:

Homework #2: Chapter 3 problems: 11, 27; Chapter 4 problems: 9, 11ade**, 21, 35
Online Learning Check: StatLab – Central Tendency (Horizontal Vertical Illusion)

Week 3:

Homework #3: Chapter 6 problems: 13, 17, 27; Chapter 7 problems: 5, 23**, 25, 31
Online Learning Check: StatLab – Standard (z) Scores (Memory Span)

Week 4:

Homework #4: Chapter 8 problems: 3, 4, 7, 15, 19, 23 (include an APA style conclusion sentence), 25, 31
Online Learning Check: StatLab – Confidence Interval (Air Traffic Control)

Week 5:

Homework #5: Chapter 9 problems: 3, 11, 13, 17, 18**, 21a**
Online Learning Check: StatLab – One-Sample T-Test (Ebbinghaus Size Illusion)

Week 6:

Homework #6: Chapter 10 problems: 1, 7, 13, 19**, 25; Chapter 11 problems: 3, 11, 13, 19, 23, 31
Online Learning Check: StatLab - Two-Sample T-Test: Judging Faces

Week 7:

Homework #7: Chapter 12 problems: 5, 13, 17; Chapter 13 problems: 3, 13, 23, 31**
Online Learning Check: StatLab – One-way ANOVA (Judging Abstract Art)

Week 8:

Homework #8: Chapter 14 problems: 5, 15, 23**, 25, 31, 33 (include an APA style conclusion sentence)
Online Learning Check: Blackboard Quiz – Two-way ANOVA

Week 9:

Homework #9: Chapter 15 problems: 5, 17, 23**; Chapter 16 problems: 11, 13, 15, 23
Online Learning Check: StatLab – Correlation (Lexical Decision)

Week 10:

Homework #10: Chapter 17 problems: 3, 5, 13, 23**, 27, 29**
Online Learning Check: Blackboard Quiz – Chi Square