Applied Data Analysis:
PSY 412, Fall 2007

_____ CRN 14556, 4 credits.

Lecture: Tues/Thurs, 4:00-5:20, 260 Condon Hall

Lab: Fri 9:00-9:50, 180 Straub

Instructor	Office	E-mail	Phone	Office Hours
Stephan Dickert	309 Straub	sdickert@uoregon.edu	346-8061	Thursday 2-3
Jessica Tipsord	328 Straub	jtipsord@uoregon.edu	346-4924	Tuesday 12-1

Class Blackboard site: http://blackboard.uoregon.edu/

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Course Goals:
This course is designed to sharpen your quantitative and analytical reasoning skills, and improve your ability to identify patterns in data, relate these patterns to substantive issues about the topic under investigation, and communicate your results and interpretation in writing. By the end of the course you should be able to:

• generate a data analysis plan appropriate to your research questions and the structure of the data

• execute your data analysis plan using SPSS

• understand and summarize the results of the statistical tests

• interpret the results in light of your research questions

• communicate your insights in writing

Course Description:
We will cover concepts and methods of descriptive and inferential statistics at an intermediate level, focusing primarily on analysis of variance (ANOVA) and multiple regression, with a brief foray into categorical data analysis. The course is designed to be difficult, but rewarding. Your understanding will vary across topics, which is fine…statistical training is a lifelong process. We will treat you as colleagues in training and see our roles as fallible guides or coaches.

Learning Adjustments:
Contact Stephan right away if you have been diagnosed with a learning disability (confirmed by the Academic Learning Center) or have some other special needs that may require adjustments for you to learn/understand the material. For more information about disability services, visit their web site: http://ds.uoregon.edu/.

Class Requirements and Activities:

1. Readings:
The primary text we will use for this course is… Howell, D. C. (2007). *Statistical Methods for Psychology (6th edition).* This is a good all-purpose statistics book and it is currently the text that is used in the first course of the graduate statistics sequence in psychology at the University of Oregon. Since much of the Howell text will cover the material in greater depth than we will go in this course, the assigned reading for each topic (on the last page of the syllabus) is selective. Howell provides a good reference book as you move forward in your exploration of data analysis and for this reason I encourage you to get a current copy and to keep it. You may also be given supplemental reading materials for certain topics. When this is the case, you will either be supplied with a photocopy of the reading or it will be made available online.

2. Participation:
Attending class and lab are not required, but it will be difficult to learn the material if you skip class. *Turn responses and homework in on time if you are going to miss class!*

3. Written responses to readings:
Every Tuesday, you will turn in a short (no more than one side of a page) ****typed* response to the assigned reading.*** *Your response will have two parts.* In the first part, you will provide a brief summary of what you see are the key points for the reading. If the assignment covers multiple chapters, you will still provide a single summary. In the second part, you should identify one or two issues from the chapter that you find confusing or hard to understand. The purpose of this assignment is to get you familiar with the concepts that we will be discussing in class each week and to help me identify concepts that require special instruction. Your responses will be turned back in class on Thursday and can be used as you work on the quiz. Responses that are turned in after class on Tuesday are considered ***late*** and ***will not be accepted***.

4. Homework:
Homework will be assigned every Tuesday and will be due at the *beginning* of class the following Tuesday. Homework will consist of conceptual questions and problem sets. For full credit, show and explain all work, and annotate your computer printouts. Each answer should fully explore any data you analyze and provide a thorough ***typed*** summary that explains the outcomes of all tests and their implications for the hypothesis or question of interest. All statistical notation and reporting should follow the APA guidelines from the 5th edition of the *Publication Manual*. Homework responses should be thought of as similar to the results and discussion sections of a journal article. Writing these summaries will help develop your skills at presenting and explaining analyses; crunching numbers is of limited use if you cannot present and interpret your results clearly. In order to provide timely guidance as you work on homework each week, we will post homework keys on Blackboard shortly after you turn them in. However, in order for us to be able to post the key, all homework will need to be turned in. Thus, ***unless other arrangements are made in advance with Jessica,*** late homework that is turned in by Thursday will earn half credit. Homework turned in by Friday at 4pm will earn one quarter credit. **Homework will not be accepted after Friday at 4pm.**

Writing Skills:
 Strunk & White's *The Elements of Style* can help you write concise, precise
sentences to communicate scientific information. Review the eight elementary rules of usage
and the ten elementary principles of composition at http://www.bartleby.com/141/

SPSS:
We will be using the Statistical Package for the Social Sciences (SPSS). SPSS is available on
all the computers in the Straub computer lab. The lab is open Monday through Thursday from
8am to 9pm and on Fridays from 8am to 5pm. Classes have first priority on access to these
computers, so check the schedule on the doors or check the online calendar for availability:(the
link is available on Blackboard or from the department web site).

SPSS can be purchased, but don't buy the student version as it lacks some pretty basic
functionality that we'll need in this class. The graduate student pack is a good option and
costs around $200.

5. Quizzes:
We will have short quizzes every Thursday on the material for that week. Quizzes provide you
with feedback about what you do and do not yet understand. Material covered in quizzes that
confused many students may make a re-appearance on the final, so study any questions you
missed!

6. Final:
The take-home final exam will include: (a) conceptual questions about different techniques (e.g.,
assumptions, associated problems), (b) "generate a plan" questions that ask you how you would
analyze a data set, and (c) actual statistical analysis and interpretation of one or more data sets
(following the format established by the homework).

***The due date for the final exam is 4pm am on Wednesday, December 5th. All final exams
must be submitted in hard copy to the psychology office by this time.***

Class percentage breakdown for grades:
Responses to readings: 15 %
Homework sets: 25 %
Quizzes: 25 %
Final exam: 35 %

All assignments except final will be graded out of a maximum of 10 points.

Course grades based on percentage of points earned			
A+	97-100	C	73-76.9
A	93-96.9	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	N	< 70
C+	77-79.9	P	70

Cheating, if detected, will earn **a failing grade** in the course. The University may impose additional penalties in accordance with the student conduct code. Don't do it! Cheating = turning in the work of others as your own, copying other people's quiz answers, or copying from someone else's final exam. For the **final,** providing or asking for help from *other students* = cheating. See below for legitimate input on the final.

What is NOT cheating? Collaborative learning; that is, getting or providing help on the **homework**. Meeting to compare notes on homework (in person or on Blackboard) can help everyone do well. However, don't just copy what someone else has done—complete the homework yourself. For the **final**, no human collaborators are permitted (but use of books, the internet, etc. is permitted).

Class Etiquette & Norms
Please try to come to class and lab on time, and stay for the whole class or lab.
Treat your fellow students and your instructors with respect.
Turn the ringer off on your cell phone during class.
Ask questions and speak up during class.
Stop by and see Stephan and Jessica during each person's office hours

Guidelines for Teaching and Learning
The Undergraduate Education Committee (UEC) of the psychology department has recently created guidelines for teaching and learning in psychology. These guidelines are available online at http://psychweb.uoregon.edu/guidelines/index.htm.

Course Schedule:

	Assigned Reading – read for class on Tuesday	Assignments & Activities:
Week 1 Sep 25th & 27th	No assignment for first class, but review 302 material as necessary. **Chapter 1: 1.1 – 1.3** **Chapter 2: 2.1 – 2.5; 2.7 – 2.10, 2.12 - 2.13** (skip material on Minitab, computational formulae, & coefficient of variation) **Chapter 3: all** **Chapter 4: all**	Tu: Intro, Diagnostic Test, EDA Th: Review normal distribution, hypothesis testing, z & t
Week 2 Oct 1st & 3rd	**Chapter 7: 7.1 – 7.3; 7.5 – 7.6** **Chapter 8: 8.1 – 8.2; 8.6 – 8.7** **Chapter 11: 11.1 – 11.5**	Tu: One-way ANOVA *HW #1 & Response #1 due* Th: Effect Size & Power *Quiz #1*
Week 3 Oct 8th & 10th	**Chapter 12: 12.1 – 12.3** (stop on p. 357 at the Dunn-Sidak test); **12.5; 12.14**	Tu: Multiple Comparisons *HW #2 & Response #2 due* Th: Multiple Comparisons *Quiz #2*
Week 4 Oct 15th & 17th	**Chapter 13: 13.1 – 13.6** (don't worry about stuff on expected means squares; skim section on simple effects); **13.10; 13.13** (skim)	Tu: Factorial ANOVA *HW #3 & Response #3 due* Th: Factorial ANOVA *Quiz #3*
Week 5 Oct 22nd & 24th	**Chapter 16: 16.5 – 16.8; 16.10** Supplemental Reading	Tu: ANCOVA *HW #4 & Response #4 due* Th: ANOVA issues *Quiz #4*
Week 6 Oct 30th & Nov 1st	**Chapter 7: 7.4** **Chapter 14: 14.1 – 14.7** (don't worry about expected means squares or simple effects stuff); **14.11**	Tu: Repeated Measures ANOVA *HW #5 & Response #5 due* Th: Repeated Measures ANOVA *Quiz #5*

Week 7 Nov 6th & Nov 8th	**Chapter 9: 9.1 – 9.9; 9.11 – 9.12** **Chapter 15: 15.1 – 15.6**	Tu: Correlation & Regression *HW #6 & Response #6 due* Th: Multiple Regression *Quiz #6*
Week 8 Nov 13th & Nov 15th	**Chapter 15: 15.7 – 15.12** Supplemental Reading	Tu: Multiple Regression *HW #7 & Response #7 due* Th: Multiple Regression Contd. *Quiz #7*
Week 9 Nov 20th & Nov 22nd	**Chapter 15: 15.13 - 15.14**	Tu: Logistic Regression *HW #8 & Response #8 due* Th: Categorical Data Analysis *Quiz #8*
Week 10 Nov 27th & Nov 29th	**Chapter 6: all**	Tu: Mediation/Moderation Wed: *HW #9 due by 4pm* Th: Wrap Up *Quiz #9*
Finals Week: Take-Home Final Exam: Due to the psychology office by 4pm on Wednesday December 5th.		