

**PSYCHOLOGY 391**  
**FALL 2005**  
**Advanced Data Analysis**  
**Mondays & Wednesdays 2:30-4:20**  
**MC 2065**

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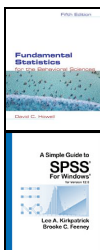
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Tutorial: 202 (Wednesday 5:30-6:20, PAS 2086)

**Texts:**



Howell, D. C. (2004). *Fundamental Statistics for the Behavioral Sciences*. Thomson.

Kirkpatrick, L. A. & Feeney, B. C. (2006). *A simple guide to SPSS for Windows*. Wadsworth.

**Course Objectives:**

This course builds from the material covered in Psychology 292. Topics that will be covered include: ANOVA, two-way ANOVA, repeated measures ANOVA, mixed designs, and multiple comparisons associated with those designs. The primary goal of the course is to provide students with a solid understanding of both the logic and computations underlying many of the advanced statistical procedures that psychologists use when analyzing data collected from experiments. An additional goal for this course is that students will learn to perform these statistical analyses using SPSS.

### **Course Requirements:**

<b>Requirement</b>	<b>Date</b>	<b>Value</b>
Midterm Exam #1	October 12 <sup>th</sup>	20%
Midterm Exam #2	November 9 <sup>th</sup>	20%
Graded Labs (N=3)	Oct 5 <sup>th</sup> , Nov 7 <sup>th</sup> and 30 <sup>th</sup>	15%
Cumulative Final Exam	TBA	45%

### **Examinations:**

In total, there will be three exams in this course. The dates for these exams can be found on the course outline. There will be two midterm exams worth 20% each. These two midterm exams will be held in class. The final exam will occur during the final examination period. Although the primary emphasis of the final examination will be material covered in the last third of the course, material from the entire course will be tested (i.e., the exam will be cumulative). The content of the exams will be a combination of conceptual (e.g., short answer) and computational questions.

### **Tutorials:**

Each student should be registered in a tutorial section. Tutorials are intended to provide students with an opportunity to work through the mechanics of the statistical procedures with a TA in a smaller group setting. For the most part, we will spend class time discussing the logic and rationale behind the statistical procedures covered in this course. The tentative tutorial schedule is posted on the final page of this outline.

### **Labs:**

There will be three lab assignments in this course. Each assignment will be worth 5% of your final grade. As with all work in this course, you are to complete the assignments on your own. It is important that you show all of your work for each assignment (i.e., all calculations). All assignments will be due at the start of class and all late assignments will be penalized. Any assignments handed in after the start of the class in which it is due will be penalized as if it was one class late. For every class that an assignment is late, 25% will be deducted from your assignment grade. For example, if you received 100% on assignment 1 but handed it in one class late you would receive 75% on the assignment.

### **Nexus Accounts:**

Because you will be required to complete portions of your lab assignments with SPSS it is important that you obtain a NEXUS account. A NEXUS account will give you access to e-mail, the internet, and a host of different software packages (including SPSS which you will need for the lab assignments). The only cost incurred with a NEXUS account is printing. You can purchase printing at PAS 1080 using your WATCARD. It is strongly recommended that you activate your NEXUS account, find the SPSS statistical package, and become familiar with it.

You can obtain a NEXUS account by: (a) going to a NEXUS computer (e.g., one located in PAS 1080), (b) clicking on the link in the bottom-left corner of the login browser, and (c) following the instructions as they are given on the screen. Alternatively, in the past many students have purchased their own version of the SPSS software. If you are interested in this option you can go to the CHIP help desk (MC 1052) and purchase SPSS.

### **Note for students with disabilities:**

The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

**\*PLEASE CHECK UW-ACE PERIODICALLY FOR COURSE ANNOUNCEMENTS AND SCHEDULE UPDATES\***

**TENTATIVE COURSE SCHEDULE**

<b>Days</b>	<b>Topic</b>	<b>Readings</b>
Sept 12	Introduction to course	
Sept 14	Review of Basic Concepts	Chap: H <sub>a</sub> 1, 2, 4, 5, 6, 8
Sept 19	Hypothesis Testing, T-tests & begin 1-way ANOVA	Chap: H <sub>a</sub> 12-14, 16.1-16.2, K&F 1-9
Sept 21	ANOVA	Chap: H <sub>a</sub> 16.1-16.2
Sept 26	ANOVA ( <b>Handout L1</b> )	Chap: H <sub>a</sub> 16.1-16.3, K&F 10
Sept 28	ANOVA	Chap: H <sub>a</sub> 16.3-16.4
Oct 3	ANOVA	Chap: H <sub>a</sub> 16.6-16.11
<b>Oct 5</b>	ANOVA ( <b>L1 due</b> )	
<b>Oct 12</b>	<b><u>Midterm #1</u></b>	
Oct 17	Multiple Comparisons: Background	Chap: H <sub>a</sub> 16.5, H <sub>b</sub> 12, K&F 10
Oct 19	Multiple Comparisons: Planned comparisons	Chap: H <sub>a</sub> 16.5, H <sub>b</sub> 12
Oct 24	Multiple Comparisons: Post Hoc	Chap: H <sub>a</sub> 16.5, H <sub>b</sub> 12
Oct 26	2-Way ANOVA ( <b>Handout L2</b> )	Chap: H <sub>a</sub> 17.1-17.4, K&F 11
Oct 31	2-Way ANOVA	Chap: H <sub>a</sub> 17.5-17.10
Nov 2	2-Way ANOVA	Chap: H <sub>a</sub> 17.5-17.10
<b>Nov 7</b>	2-Way ANOVA ( <b>L2 due</b> )	
<b>Nov 9</b>	<b><u>Midterm #2</u></b>	
Nov 14	Repeated Measures	Chap: H <sub>a</sub> 18, H <sub>b</sub> 14
Nov 16	Repeated Measures	Chap: H <sub>a</sub> 18, H <sub>b</sub> 14
Nov 21	Repeated Measures ( <b>Handout L3</b> )	Chap: H <sub>a</sub> 18, H <sub>b</sub> 14, K&F 12
Nov 23	Mixed Designs	H <sub>b</sub> 14, K&F 13
Nov 28	Mixed Designs	H <sub>b</sub> 14
Nov 30	2-way repeated measures ( <b>L3 due</b> )	H <sub>b</sub> 14
Dec 5	2-way repeated measures	H <sub>b</sub> 14

**H<sub>a</sub>** - Refers to the Howell (2004) text assigned for the class

**H<sub>b</sub>** - Refers to reserve readings from Howell's (1997) text entitled "Statistical methods for Psychology". These materials will be available for photocopying in PAS 4028 and the Dana Porter Library.

**K&F**: Refer to chapters from the Kirkpatrick and Feeney book "A Simple Guide to SPSS for Windows"

**L1-L3**: Refers to the three lab assignments

### TENTATIVE TUTORIAL/REVIEW SCHEDULE

<b>Tutorial #</b>	<b>Date</b>	<b>Objective</b>
No Tutorial	Week of Sept 12 <sup>th</sup>	
<b>Tutorial 1</b>	Week of Sept 19 <sup>th</sup>	Review how to calculate t-tests
<b>Tutorial 2</b>	Week of Sept 26 <sup>th</sup>	Review the steps in conducting a one-way ANOVA
No Tutorial	Week of Oct 3 <sup>rd</sup>	
<b>Review Session</b>	Tuesday Oct 11 <sup>th</sup>	Available for questions the Tuesday before the first midterm (location TBA, 9-5)
No Tutorial	Week of Oct 10 <sup>th</sup>	
<b>Tutorial 3</b>	Week of Oct 17 <sup>th</sup>	Review multiple comparison techniques
<b>Tutorial 4</b>	Week of Oct 24 <sup>th</sup>	More Post Hoc
<b>Tutorial 5</b>	Week of Oct 31 <sup>st</sup>	Review how to calculate a two-way ANOVA
<b>Review Session</b>	Tuesday Nov 8 <sup>th</sup>	Available for questions on the Tuesday before the second midterm (location TBA, 9-5)
No Tutorial	Week of Nov 7 <sup>th</sup>	
No Tutorial	Week of Nov 14 <sup>th</sup>	
<b>Tutorial 6</b>	Week of Nov 21 <sup>st</sup>	Review calculations for repeated measures ANOVA
<b>Tutorial 7</b>	Week of Nov 28 <sup>th</sup>	Review calculations for mixed designs
<b>Review Session</b>	At the completion of classes	Location and time TBA, 9-5)

**NOTE: Please be aware of the following university policies**

- All students registered in the courses of the Faculty of Arts are expected to know what constitutes an academic offence, to avoid committing academic offences, and to take responsibility for their academic actions. When the commission of an offence is established, disciplinary penalties will be imposed in accord with Policy #71 (Student Academic Discipline). For information on categories of offences and types of penalties, students are directed to consult the summary of Policy #71 which is supplied in the Undergraduate Calendar (section 1; on the Web at [http://www.adm.uwaterloo.ca/infoucal/UW/policy\\_71.html](http://www.adm.uwaterloo.ca/infoucal/UW/policy_71.html)). If you need help in learning how to avoid offences such as plagiarism, cheating, and double submission, or if you need clarification of aspects of the discipline policy, ask your TA or course instructor for guidance or consult “How to Avoid Plagiarism and Other Written Offences: A Guide for Students and Instructors” (<http://watarts.uwaterloo.ca/~sager/plagiarism.html>). Other resources regarding the discipline policy are your academic advisor and the Undergraduate Associate Dean.
- Students who believe that they have been wrongfully or unjustly penalized have the right to grieve. Please refer to Policy #70 (Student Grievance) at <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>.