

# Advanced Statistics in Psychology

PSY 670B

Spring 2011

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## Class Meetings

Day	Time	Topic	Room
T	9:00 a.m. – 9:50 a.m.	Lecture	LS 111
T	10:00 a.m. – 10:50 a.m.**	Lab	LS 117
Th	9:00 a.m. – 10:50 a.m.	Lecture	LS 111

\*\* 1<sup>st</sup> lab: Tuesday, 2/1.

## Goals/Expectations

- Understand the conceptual underpinnings of statistics that are common to all research designs.
- Discern the appropriate model comparison to answer the substantive research question at hand.
- Run analyses by hand and on the computer.
- Interpret statistical results...What do they really mean?

## Text

Judd, C.M., McClelland, G.H., & Ryan, C.R. (2008). *Data Analysis: A Model Comparison Approach*. 2<sup>nd</sup> Ed. New York: Routledge.

## Assignments

**Exams.** There will be two midterm exams and a cumulative final. Exams include 2 to 3 sections drawn from the following types of problems: writing out hypotheses/model comparisons to test substantive research questions, short answer/essays on the conceptual underpinnings of statistics, and output questions. You will be able to use a formula sheet I provide and a calculator. As the exams approach, I will post example tests from previous years to give you a better sense of what you can expect.

**Homework.** There will be homework assignments approximately weekly. HW assignments will be posted on Blackboard. We will work on assignments in the latter half of class on Tuesdays and they will be due the following Tuesday at the beginning of lecture. Although class time is allotted to HW this is largely to assist you with computer issues. Do not expect to finish your HW during class. You can drop 1 HW grade per term.

## Course Grades

Exam 1	25%
Exam 2	25%
Final Exam	30%
Homework Average	20%

<b>Lecture Schedule Spring 2011</b>		
<i>Models with Categorical Predictors/IVs</i>		
1/20 – 2/8	8. Models with single categorical predictors	Independent Samples t-test, One-way ANOVA, Tests of Planned Contrasts
2/10 – 2/22	9. Models with multiple categorical predictors	Two-way ANOVA, Factorial ANOVA
2/24 – 3/3	10. Models with both continuous and categorical predictors, and their products	ANCOVA, Mediation, Separate Groups Regression, Moderated Regression
3/8	<b>Exam 1</b>	
<i>Violations of Assumptions about Error</i>		
3/10 – 4/14	11. Repeated Measures ANOVA: Models with Nonindependent Errors	Repeated Measures ANOVA, Within-, Between-, and Mixed-Model ANOVA
4/19	<b>Exam 2</b>	
4/21 – 5/3	12. Continuous Predictors with Nonindependent Observations	Within-Subject Regression, Hierarchical Linear Models (HLM), Multilevel Models (MLM)
5/5 – 5/10	13. Outliers and Ill-Mannered Error	Outlier Analysis
<b>Thursday, 5/19 8:00 – 10:00 a.m.</b>	<b>Final Exam</b>	<i>Note: On final exam schedule, our class is grouped with TTh classes that begin at 8.</i>