

Psychology 770B
Experimental Design and Data Analysis in Behavioral Research
Spring 2010

<http://www.sci.sdsu.edu/class/psy770/>

Instructor

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Course Description

This class is about data analysis using the analysis of variance version of the linear model. You will learn about one-way and higher-order between- and within-subjects designs, planned and post-hoc comparisons, fixed and random factors, analysis of covariance and blocking, the univariate and multivariate approaches to within-subjects designs, and (if time allows) robust ANOVA models. Data will be analyzed using the SPSS and Stata statistical software packages. My teaching style is fairly eclectic, including lectures, in-class synaptic exercises, discussion, homework, and data analysis demonstration activities (DADA). Course grades will be based on two midterms, a final, three homework assignments, and the DADA project. The two midterms will each compose 20%, the final will comprise 35%, homework assignments will account for 20%, and DADA will make up 5% of the final grade. Grades will be assigned according to the following rough guidelines: A = 90% and better, B = 80-89%; C = 70-79%; D = 60-69%; and F=59% and below.

Textbook

Maxwell, S.E., & Delaney, H.D. (2004) (2nd edition). Designing experiments and analyzing data. A model comparison perspective. Mahwah, NJ: Lawrence Erlbaum. **(required)**

Electronic version of the first edition of the textbook (SDSU users only): Maxwell & Delaney (1990)

Visit the web site accompanying this textbook for SPSS and SAS support for chapter examples:
www.designingexperiments.com

Web Resources for SPSS, Stata, SAS, HLM, and more

UCLA Statistical Computing Resources: <http://www.ats.ucla.edu/stat/>

Still Highly Recommended Reading (surprisingly interesting, brilliant, and funny)

David Salsburg (2002). *The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century*. New York: Owl Books (\$13.26 at Amazon - the steal of the decade!)

Software

SPSS: Available in most labs on campus and through a site license agreement (for SDSU employees only).
Stata: Purchase through the Stata GradPlan at <http://www.stata.com/order/new/edu/gradplans/gp2-order.html>

Course Outline

Date	Topic	READINGS
Th 1-21	Logistic Regression	Cohen et al. Ch 13
T 1-26	Logistic Regression	Cohen et al. Ch 13
Th 1-28	One-Way Between-Subjects Designs	pp. 67-98 Ch 3
T 2-2	One-Way Between-Subjects Designs	pp. 98-126 Ch 3
Th 2-4	Individual Comparisons	pp. 149-180 Ch 4
T 2-9	Multiple Comparisons	pp. 193-213 Ch 5
Th 2-11	Multiple Post Hoc Comparisons	pp. 213-237 Ch 5
T 2-16	Multiple Comparisons-MRC revisited	pp. 193-237 Ch 5
Th 2-18	Midterm Exam 1	Ch. 3-5
T 2-23	Trend Analysis	pp. 243-269 Ch 6
Th 2-25	Two-Way Designs	pp. 275-297 Ch 7
T 3-2	Two-Way Designs	pp. 297-320 Ch 7
Th 3-4	Nonorthogonal Factorial Designs (2x2)	pp. 320-343 Ch 7
T 3-9	Higher-Order Designs	pp. 354-367 Ch 8
Th 3-22	Higher-Order Designs	pp. 367-392 Ch 8
T 3-16	ANCOVA and Blocking	pp. 399-420 Ch 9
Th 3-18	ANCOVA and Blocking	pp. 420-452 Ch 9
T 3-23	Midterm Exam 2	Ch.6-9
Th 3-25	Random Factors	pp. 469-493 Ch 10
T 3-30	<i>Spring Break</i>	
Th 4-1	<i>Spring Break</i>	
T 4-6	One-Way Within-Subjects Designs: Univariate	pp. 525-547 Ch 11
Th 4-8	One-Way Within-Subjects Designs: Univariate	pp. 547-567 Ch 11
T 4-13	Higher-Order Within-Subjects Designs: Univariate	pp. 573-592 Ch 12
Th 4-15	One Within & One Between-Subjects Factor: Univariate	pp. 592-610 Ch 12
T 4-20	One-Way Within-Subjects Designs: Multivariate	pp. 624-637 Ch 13
Th 4-22	One-Way Within-Subjects Designs: Multivariate	pp. 638-649 Ch 13
T 4-27	One-Way Within-Subjects Designs: Multivariate	pp. 650-676 Ch 13
Th 4-29	Higher-Order Within-Subjects Designs: Multivariate	pp. 682-694 Ch 14
Tu 5-4	Higher-Order Within-Subjects Designs: Multivariate	pp. 694-704 Ch 14
Th 5-6	Higher-Order Within-Subjects Designs: Multivariate	pp. 704-725 Ch 14
Tu 5-11	Higher-Order Within-Subjects Designs: Multivariate	pp. 725-746 Ch 14
Th 5-20	FINAL EXAM 8:00-10:00	Ch. 3-14