



Department of Psychology

Design and Analysis in Experimental Research

Psychology 411 (L02) Winter 2006

Instructor: Dr. Brian C. Holtz **Office:** A258
Phone: 220-8482 **Office hours:** By appointment
E-mail: bholtz@ucalgary.ca

Course Assistant: TBA **Office:** TBA
Office hours: TBA

Lecture Day/Time: TR 12:30-13:45 **Location:** A0167
Lab B03 Day/Time: TBA **Location:** TBA
Lab B04 Day/Time: TBA **Location:** TBA

Textbook: None.

Readings: *Optional* readings available for purchase from the Psychology Undergraduate Students' Association (PSYCHS) in Admin. 170.

Lab: Attendance is **mandatory**. You must pass the laboratory component of this course to pass the course. A separate handout on the laboratory component will be given out during the first lab.

Course Objectives:

This course will provide an overview of research design issues in psychology. Further the course is designed to present the theoretical and mathematical foundations of the General Linear Model (GLM) and explore how statistical procedures commonly used in psychological research are subsets of the model. Procedures to be considered include: (a) Linear and multiple regression; (b) ANOVA; (c) Analysis of Covariance (ANCOVA); (d) Multivariate Analysis of Variance (MANOVA); and (e) Discriminant Function Analysis.

Learning Goals:

Upon completion of this course, students should:

- Understand the role of theory and design in psychological research
- Have a firm conceptual and mathematical grasp of the General Linear Model (GLM).
- Understand how specific analytical techniques are derived from the GLM.
- Be able to run a variety of univariate and multivariate analyses using the SPSS statistical package.

- Be able to critically read and review empirical papers published in scholarly journals with respect to analytic procedures.
- Know how to analyze and interpret statistical interactions.
- Understand the basics of multivariate analysis.

Distribution of Credit:

Exams	60 pts.
Article Presentation	10 pts.
Laboratory	30 pts.
Total	100 pts.

Grading scale:

The following grading scale will be used to determine final course grades. However, it should be noted that grades might be "curved up" if the class performance is abnormally low. **Grades will not be curved down under any circumstances.**

A+	96-100%	B+	80-84%	C+	67-71%	D+	54-58%
A	90-95%	B	76-79%	C	63-66%	D	50-53%
A-	85-89%	B-	72-75%	C-	59-62%	F	0-49%

Note: To determine final letter grades, final percentage grades will be rounded up or down to the nearest whole percentage (i.e., 89.5% will be rounded up to 90%; 89.4% will be rounded down to 89%, etc.).

Exams:

Exams will consist of multiple choice, short-answer, and computational-type questions. There will be four exams during the course of the semester. Each exam will be worth 20-points. Note that there are 60 exam points possible. For each student, the lowest score of the four examinations will be dropped.

Article Presentations:

With a partner, you will find an empirical article of interest to you. The article must be from a quality peer-reviewed scientific journal. Students are required to give an 8-10 minute presentation of the article, preferably in PowerPoint format. It is important to note that the presentations must be a true collaboration with work split equally between the partners. Each partner should speak for approximately the same amount of time. Partners will receive the same grade. The presentation should include the following components: an overview of the topic, hypotheses, research design, statistical analyses, results, and implications.

Tentative Topic Outline and Readings

Date	Topic
January 10	Introduction, Overview
January 12	Goals of Scientific Research
January 17	Research Design Issues
January 19	Research Design Issues
January 24	The General Linear Model
January 26	Correlation and Covariance
January 31,	Exam 1
February 2	Simple Regression
February 7	Multiple Regression
February 9	Mediated Regression
February 14	Moderated Regression
February 16	Regression cont.
February 21, 23	NO CLASS
February 28	Exam 2
March 2	ANOVA
March 7	Factorial ANOVA
March 9	Factorial ANOVA Cont.
March 14	Repeated-Measures ANOVA
March 16	ANOVA cont.
March 21	ANOVA cont.
March 23	Exam 3
March 28	ANCOVA
March 30	ANCOVA
April 4	MANOVA
April 6	DFA
April 11	Presentations
April 13	Presentations
April 17-	Exam 4

Note: The above schedule may be modified from time to time as circumstances warrant. Students will be advised of any changes that are made.

University of Calgary Curriculum Objectives

Based upon the structure and content of this course, the following **Core Competencies** are addressed:

1. Analysis of problems
2. Critical and creative thinking
3. Logical calculation, mathematical ability
4. Abstract reasoning and its applications
5. Interpretive and assessment skills

The following **Curriculum Redesign Features** are addressed in this course:

1. An experiential learning component relevant to the program objectives

Reappraisal of Grades

A student who feels that a piece of graded term work (term paper, essay, test, etc.) has been unfairly graded, may have the work re-graded as follows. The student shall discuss the work with the instructor within fifteen days of being notified about the mark or of the item's return to the class. If not satisfied, the student shall immediately take the matter to the Head of the department offering the course, who will arrange for a reassessment of the work within the next fifteen days. The reappraisal of term work may cause the grade to be raised, lowered, or to remain the same.

If the student is not satisfied with the decision and wishes to appeal, the student shall address a letter of appeal to the Dean of the faculty offering the course within fifteen days of the unfavourable decision. In the letter, the student must clearly and fully state the decision being appealed, the grounds for appeal, and the remedies being sought, along with any special circumstances that warrant an appeal of the reappraisal. The student should include as much written documentation as possible.

Plagiarism and Other Academic Misconduct

Intellectual honesty is the cornerstone of the development and acquisition of knowledge and requires that the contribution of others be acknowledged. Consequently, plagiarism or cheating on any assignment is regarded as an extremely serious academic offense. Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Students should examine sections of the University Calendar that present a Statement of Intellectual honesty and definitions and penalties associated with Plagiarism/Cheating/Other Academic Misconduct.

Academic Accommodation

It is a student's responsibility to request academic accommodation. If you are a student with a disability who may require academic accommodation and **have not** registered with the Disability Resource Centre, please contact their office at 220-8237. If you are seeking academic accommodation, please notify your instructor no later than fourteen (14) days after the commencement of the course. Note that the lecturer must approve any tape recordings of lectures.

Absence From A Test

Make-up exams are NOT an option without an official University medical excuse (see the University Calendar). You must contact the instructor before the scheduled examination or you will have forfeited any right to make up the exam. At the instructor's discretion, a make-up exam may differ significantly (in form and/or content) from a regularly scheduled exam. Except in extenuating circumstances (documented by an official University medical excuse), a makeup exam is written within two (2) weeks of the missed exam.

A completed Physician/Counselor Statement will be required to confirm absence from a test for health reasons. The student will be required to pay any cost associated with the Physician Counselor Statement.

Bonus Course Credits for Research Participation

Students in most psychology courses are eligible to participate in Departmentally-approved research and earn credits toward their final grades. A maximum of two credits (2%) per course, including this course, may be applied to an individual's final grade. Information about current experiments is on the Experimetrix website at <http://experimetrix.com/uc>. The read.me link at that site provides a guide to using the system and assigning your credits. The last day to participate in research and **ALLOCATE YOUR CREDITS TO YOUR COURSES** is April 12, 2006.

Student Organizations

Psychology students may wish to join the Psychology Undergraduate Students' Association (PSYCHS). They are located in the Administration building, room 170 or may be contacted at 220-5567.

Student Union VP Academic: Phone: 220-3911 suypaca@ucalgary.ca
Student Union Faculty Rep.: Phone: 220-3913 socialscirep@su.ucalgary.ca

Important Dates

The last day to drop this course and **still receive a fee refund** is January 20, 2006. The last day to withdraw from this course is April 13, 2006.