



Department of Psychology

Psychology 411 (L01) – Design and Analysis in Psychological Research

Winter 2008

Instructor:	Dr. S. D. Boon	Lecture Location:	ST 064
Phone:	220-5564	Lecture Days/Time:	MWF 12:00-12:50
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Office Hours:	TBA		

Teaching Assistant	Joe Schmidt		
Lab B01 Day/Time:	W 16:00	Location:	SS18
Lab B02 Day/Time:	F 14:00	Location:	SS18

Course Description and Goals

Calendar Description: Experimental design problems and techniques for analysis of psychological data. **Prerequisite: Psyc 312**

Course Objectives: This 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. Subsets of the GLM to be considered are: (a) Linear and multiple regression, including direct and hierarchical procedures; (b) Mixed models involving both categorical and continuous independent variables; (c) Planned Comparisons; (d) Analysis of Covariance (ANCOVA); (e) Multivariate Analysis of Variance (MANOVA) and (f) Discriminant Function Analysis.

Learning Goals: Upon completion of this course, students should:

- 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 planned comparisons and Analysis of Covariance (ANCOVA).
- Understand the basics of multivariate analysis including the concepts of eigenvalues and eigenvectors.

Required Text

No required text. Set of readings available for purchase from the Psychology Undergraduate Students' Association (PSYCHS) in Admin. 170.

Evaluation

Midterm exam	30 %	February 27 and 29, 2008
Final exam	40 %	To be scheduled by registrar
Laboratory	30 %	See lab outline

Exams:

Exams will consist of both **short-answer** and **computation questions**. The midterm will be in two parts, written in two consecutive classes. The final exam will be CUMULATIVE.

Laboratory:

Laboratory attendance is **mandatory**. You must pass the laboratory component of this course to pass the course. A separate lab outline will be given out during the first lab.

Grading Scale

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%

As stated in the University Calendar, it is the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades. 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.).

Tentative Topic Outline and Readings

DATE	Readings
Jan. 14-17	Introduction and overview. Review of GLM basics.
Jan. 21-25	Introduction to regression analysis Ch. 2 Pedhazur
Jan. 25	<i>Last day for Winter registration and change of registration</i>
Jan. 28- Feb. 1	Regression analysis cont'd Ch. 3 Pedhazur
Feb. 4-8	Regression analysis cont'd
Feb. 11-15	Regression analysis cont'd
Feb. 18-22	<i>No classes – Reading Week—University closed Feb. 18 Family Day</i>
Feb. 25	Review
Feb. 27-29	MIDTERM EXAM (two parts, over two days)
Mar 3-7	ANOVA
Mar 10-14	ANOVA cont'd
Mar. 17- 19	Planned comparisons

Mar. 21	<i>Good Friday—no classes—University closed</i>	
Mar 24-28	Mixed model regression/ANCOVA	Ch. 15 Pedhazur
Mar 31- Apr 4	Multivariate Analysis of Variance (MANOVA)	Ch. 15 Diekhoff
Apr 7-11	Discriminant function analysis (DFA)	Ch. 14 Diekhoff
Apr 14-18	Review	
Apr 17	<i>Last day to allocate Research Credits to Winter Session half courses and full courses</i>	
Apr 21-30	<i>Winter Session Final Examinations</i>	

N.B. The above schedule and procedures in this course are subject to change in the event of extenuating circumstances.

University of Calgary Curriculum Objectives

This course addresses the following core competencies:

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 the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and **have not** registered with the Disability Resource Centre, please contact their office at 220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.

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.

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. Students can create an account and access the Research Participation System website at <http://ucalgary.sona-systems.com>. **The last day to participate in research is April 17, 2008.**

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 25, 2008. The last day to withdraw from this course is April 18, 2008.