



Department of Psychology
Psychology 411 (L01) – Design and Analysis in Psychological Research
Fall 2009

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Office Hours:	TBA	Lab Days/Time:	W 09:00
Lecture Location:	SH284		R 11:00
Lecture Days/Time:	TR14:00-15:15	Lab location	SS018

Course Description and Goals

Experimental design problems and techniques for analysis of psychological data.

Prerequisites

Psyc 312 – Experimental Design and Quantitative Methods for Psychology

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 simultaneous and hierarchical entry; (b) ANOVA and planned comparisons; (c) Mixed models involving both categorical and continuous independent variables; (d) Analysis of Covariance (ANCOVA); (e) Multivariate Analysis of Variance (MANOVA); and (f) Discriminant Function Analysis.

Required Text

No required text. **Set of required handouts available for purchase from the Psychology Undergraduate Students' Association (PSYCHS) in Admin. 170.** Additional, supplementary readings are available for photocopying (at your cost) from PSYCHS if you feel a need to have reference materials. An up-to-date PSYCHS membership will be required to borrow these readings for copying purposes.

Evaluation

Course Component	Weighting	Due Date
Midterm exam	35%	Oct 20, 2009
Final exam	35%	To be scheduled by registrar
Laboratory	30% (6% each)	Five equally-weighted written assignments due throughout term. See Lab Schedule below for descriptions.

Exams will consist of both **short-answer** and **computation questions**, but the emphasis will be on short answer questions. The midterm (to be held in class, Oct. 20) will cover the material up to and including then end of multiple regression. The final exam (to be scheduled by the registrar) will be CUMULATIVE.

The use of calculators and/or portable computing machines is permitted for exams in this course. However, you will be graded on your work. Accordingly, **if you fail to show your work, you will receive a 0 for the question (or computation component of the question) even if the answer is correct.**

Laboratory:

Students must achieve a passing grade on both the class and lab components to pass this course. Lab assignments must be handed in at the beginning of the lab on which the due date falls (see the Lab Schedule below). Under exceptional circumstances (e.g., illness), other arrangements may be made at the discretion of the Teaching Assistant. Late lab assignments will not be accepted, except under exceptional circumstances at the discretion of the Teaching Assistant and with the approval of the Instructor. Lab assignments submitted electronically will not be accepted.

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 Lecture Schedule

Date	Topic	Supplemental Reading (optional)
Sept 8	Lectures begin Introduction and overview.	
Sept 10	Review of GLM basics	
Sept 15	Introduction to regression analysis	Ch. 2 Pedhazur
Sept 17		
Sept 18	<i>Last day to drop a course with no W grade and tuition refund.</i>	
Sept 22	<i>Last day for registration/change of registration.</i>	
Sept 22	Regression analysis cont'd	Ch. 3 Pedhazur
Sept 24		
Sept 29	Regression analysis cont'd	
Oct 1		
Oct 6	Regression analysis cont'd	
Oct 8		
Oct 12	Thanksgiving Day. University closed.	
Oct 13	ANOVA	

Oct 15	Exam review	
Oct 20	Midterm exam in class Oct 20	
Oct 22	ANOVA cont'd Oct 22	
Oct 27	ANOVA cont'd	
Oct 29		
Nov 3	Planned comparisons	
Nov 5		
Nov 10	Mixed model regression	Ch. 15 Pedhazur
Nov 11-15	Reading Days. No lectures.	
Nov 17	Mixed model regression contd	
Nov 19	ANCOVA	
Nov 24	Multivariate Analysis of Variance (MANOVA)	Ch. 15 Diekhoff
Nov 26		
Dec 1	Discriminant function analysis (DFA)	Ch. 14 Diekhoff
Dec 3		
Dec 7	Last day to participate in research and allocate research credits	
Dec 8	Exam review Fall Session Lectures end. Last day to withdraw	
Dec 11-21	Final exams (scheduled by the Registrar)	
Dec 25-31	Holiday Observance. Session Break. University closed.	

Lab Schedule

Week of lecture	Lab Topic	Assignment
Sept 9 Sept 10	No labs this week	
Sept 16 Sept 17	Lab orientation	
Sept 23 Sept 24	Linear regression	Receive Assignment 1 (linear regression)
Sept 30 Oct 1	Multiple Regression	Receive Assignment 2 (multiple regression)
Oct 7 Oct 8	Regression cont'd	Assignment 1 due
Oct 14 Oct 15	In Lab Exam review	Assignment 2 due
Oct 21 Oct 22	No labs this week (exam in class Oct 20)	
Oct 28 Oct 29	ANOVA	Receive Assignment 3 (ANOVA)
Nov 4 Nov 5	Planned comparisons	Assignment 3 due
Nov 11-	Reading Days. No labs.	

15		
Nov 18 Nov 19	Mixed model regression (MMR)	Receive Assignment 4 (MMR)
Nov 25 Nov 26	Multivariate Analysis of Variance (MANOVA)	Receive Assignment 5 (MANOVA)
Dec 2 Dec 3	Discriminant function analysis (DFA) Exam review	Assignments 4 and 5 due

Reappraisal of Grades

A student who feels that a piece of graded term work (e.g., term paper, essay, test) has been unfairly graded, may have the work re-graded as follows. The student shall discuss the work with the instructor within 15 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 15 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 15 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 14 days after the start of this course.

Absence From A Test/Exam

Makeup tests/exams are NOT an option without an official University medical excuse (see the University Calendar). A completed Physician/Counselor Statement will be required to confirm absence from a test/exam for health reasons; the student will be required to pay any cost associated with this Statement. Students who miss a test/exam have 48 hours to contact the instructor and to schedule a makeup test/exam. Students who do not schedule a makeup test/exam with the instructor within this 48-hour period forfeit the right to a makeup test/exam. At the instructor's discretion, a makeup test/exam may differ significantly (in form

and/or content) from a regularly scheduled test/exam. Except in extenuating circumstances (documented by an official University medical excuse), a makeup test/exam must be written within 2 weeks of the missed test/exam.

Course Credits for Research Participation (Max 2% of final grade)

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. The demand for timeslots may exceed the supply in a given term. Thus, students are not guaranteed that there will be enough studies available to them to meet their credit requirements. Students should seek studies early in the term and should frequently check for open timeslots. Students can create an account and participate in Departmentally-approved research studies at <http://ucalgary.sona-systems.com>. The last day to participate in studies and to assign or reassign earned credits to courses is **Dec 7th, 2009**.

Student Organizations

Psychology students may wish to join the Psychology Undergraduate Students' Association (PSYCHS). They are located in Administration 170 and 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 **Sep 18th, 2009**. The last day to withdraw from this course is August **Dec 8th, 2009**.