UNIVERSITY OF
CALGARY
Department of Psychology
Psychology 411 (L02) – Design and Analysis in Psychological Research
Winter 2009

Instructor:	**Dr. S. D. Boon**	**Lecture Location:**	A253
Phone:	403-220-5564	**Lecture Days/Time:**	TR 11:00-12:15
Email:	sdboon@ucalgary.ca	**Teaching Assistant**	**David Kraichy**
Office:	A231B	**TA office**	A141B
Office Hours:	TBA	**TA e-mail**	dgkraich@ucalgary.ca
		TA phone	403-210-9476
		TA office hours	TBA
		Lab B01 Day/Time	W 17:00
		Lab B02 Day/Time	F 09:00
		Lab location	SS018

Course Description and Goals
Experimental design problems and techniques for analysis of psychological data.

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) 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.

Prerequisite: Psyc 312

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%	March 3, 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:

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, March 3) 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.

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.).

Lecture Schedule

Date	Topics	Supplementary Reading (*optional*)
T Jan 13 R Jan 15	Lectures begin. **Introduction and overview**. **Review of GLM basics**	
T Jan 20 R Jan 22	Introduction to **regression analysis**	Ch. 2 Pedhazur
F Jan 23	Last day for registration and change of registration. No fee refunds after today.	
T Jan 27 R Jan 29	Regression analysis cont'd	Ch. 3 Pedhazur
T Feb 3 R Feb 5	Regression analysis cont'd	
T Feb 10 R Feb 12	Regression analysis cont'd	
T Feb 17 R Feb 19	Reading Week – No classes Feb 15-22	
T Feb 24 R Feb 26	**ANOVA/** Exam review	
T Mar 3 R Mar 5	**Midterm exam** in class Mar. 3 ANOVA cont'd Mar. 5	
T Mar 10	ANOVA cont'd	

R Mar 12		
T Mar 17 R Mar 19	**Planned comparisons**	
T Mar 24 R Mar 26	**Mixed model regression/ANCOVA**	Ch. 15 Pedhazur
T Mar 31 R Apr 2	**Multivariate Analysis of Variance** (MANOVA)	Ch. 15 Diekhoff
T Apr 7 R Apr 9	**Discriminant function analysis** (DFA)	Ch. 14 Diekhoff
T Apr 14 R Apr 16	DFA cont'd **Exam review**	
R Apr 16	Last day to allocate research participation credits.	
F Apr 17	Lectures end. Last day to withdraw.	
Apr 20-30	Final exams (scheduled by the Registrar)	

Lab Schedule

Week of lecture	Lab Topic	Assignment
T Jan 13 R Jan 15	**No labs this week**	
T Jan 20 R Jan 22	Lab orientation	
T Jan 27 R Jan 29	Linear regression	Receive Assignment 1 (linear regression)
T Feb 3 R Feb 5	Multiple Regression	Receive Assignment 2 (multiple regression)
T Feb 10 R Feb 12	Regression cont'd	*Assignment 1 due*
T Feb 17 R Feb 19	**Reading Week – No labs**	
T Feb 24 R Feb 26	In Lab Exam review	*Assignment 2 due*
T Mar 3 R Mar 5	**No labs this week (exam in class March 3)**	
T Mar 10 R Mar 12	ANOVA	Receive Assignment 3 (ANOVA)
T Mar 17 R Mar 19	Planned comparisons	*Assignment 3 due*
T Mar 24 R Mar 26	Mixed model regression (MMR)	Receive Assignment 4 (MMR)
T Mar 31 R Apr 2	Multivariate Analysis of Variance (MANOVA)	Receive Assignment 5 (MANOVA)
T Apr 7 R Apr 9	Discriminant function analysis (DFA)	
T Apr 14	**Exam review**	*Assignments 4 and 5 due*

R Apr 16		

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

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

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 the student's final grade. Students earn 0.5% (0.5 credits) for each full 30 minutes of participation. 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 **April 16, 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   suvpaca@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 23, 2009**. The last day to withdraw from this course is **April 17, 2009**.