



Department of Psychology
Psychology 411 (L01) – Design and Analysis in Psychological Research
Winter 2011 – Course Outline

Instructor:	Dr. Susan D. Boon	Lecture Location:	A253
Phone:	403-220-5564	Lecture Days/Time:	MWF 13:00–13:50
Email:	sdboon@ucalgary.ca	Lab Days/Time:	B01 T 11:00–12:50 B02 R 13:00–14:50
Office:	A231B	Lab Room:	SS018
Office Hours:	TBA	TA:	K. E. Sheppard
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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) 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.

Prerequisites

Psyc 312 – Experimental Design and Quantitative Methods

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	% of Grade	Date
Midterm exam #1	20%	February 11, 2011
Midterm exam #2	20%	March 21, 2011
Final exam	30%	To be scheduled by registrar
Laboratory	30%	Five equally-weighted written assignments

(6% each) due throughout term. See Lab Schedule below for descriptions.

Exams

Exams will consist of both **short-answer** and **computation questions**, with the considerable emphasis on short answer questions. The first midterm (Feb. 11) will cover the material up to and including then end of multiple regression. The second midterm (March 21) will cover ANOVA and planned comparisons. The final exam (to be scheduled by the registrar) will be CUMULATIVE and therefore cover **all** course material. **NOTE:** You will not be graded on the quality of your writing. However, if I can't understand your answer because of awkward language, grammatical errors, and so forth, my inability to understand your answer will necessarily affect your grade in a negative fashion.

The use of calculators is permitted for computational questions on the exams. However, you will be graded on your work. Accordingly, **if you fail to show your work, you will receive a 0 for the question (i.e., for the computation component of the question) even if the final answer is correct.**

The use of computers is not permitted for exams in this course. Exam answers must be written in the exam booklets provided during the exam.

No study aids will be permitted during exams for this course, apart from those that may be provided by the instructor during the exam.

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 and 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 at 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 (e.g., 89.5% will be rounded up to 90% = A but 89.4% will be rounded down to 89% = A-).

Tentative Lecture Schedule

Date	Topic	Supplemental Reading (optional)
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Jan 10-14	Lectures begin. Introduction and overview. Review of GLM basics	Ch. 2 Pedhazur
Jan 17-21	Introduction to regression analysis	Ch. 3 Pedhazur
Jan 21	Last day to drop a course with no W grade and tuition refund.	
Jan 24	Last day for registration/change of registration.	
Jan 24-28	Regression analysis cont'd	
Jan 31–Feb 4	Regression analysis cont'd	
Feb 7-9	Regression analysis cont'd	
Feb 11	Midterm exam #1	material to end of multiple regression
Feb 14-18	ANOVA	
Feb 21-25	Reading days. No lectures.	
Feb 28–Mar 4	ANOVA cont'd	
Mar 7-11	ANOVA cont'd	
Mar 14-18	Planned comparisons	
Mar 21	Midterm exam #2	ANOVA to end of planned comparisons
Mar 21-25	Mixed model regression	
Mar 28-Apr 1	Mixed model regression cont'd ANCOVA	Ch. 15 Pedhazur
Apr 4 - 8	Multivariate Analysis of Variance (MANOVA)	Ch. 15 Diekhoff
Apr 11 – 15	Discriminant Function Analysis Exam review.	Ch. 14 Diekhoff
R Apr 14	Last day to participate in research and allocate research credits.	
F Apr 15	Lecture ends. Last day to withdraw.	

Tentative Laboratory Schedule

Week of	Topic	Assignments and due dates
Jan 10-14	No labs this week	
Jan 17-21	Lab orientation	
Jan 24-28	Linear regression	Receive Assignment 1 (linear regression)
Jan 31–Feb 4	Multiple Regression	Receive Assignment 2 (multiple regression)
Feb 7-11	Multiple regression cont'd; Exam review, time permitting	Assignment 1 due

Feb 14-18	ANOVA	Receive Assignment 3 (ANOVA) Assignment 2 due
Feb 21-25	Reading days. No labs.	
Feb 28–Mar 4	ANOVA cont'd	
Mar 7-11	No labs this week	Assignment 3 due
Mar 14-18	Exam review	
Mar 21-25	Planned comparisons	
Mar 28-Apr 1	Mixed model regression	Receive Assignment 4 (MMR)
Apr 4 - 8	Multivariate Analysis of Variance (MANOVA)	Receive Assignment 5 (MANOVA)
Apr 11 – 15	Discriminant Function Analysis Exam review, time permitting	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 403-220-8237. 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.

Freedom of Information and Protection of Privacy (FOIP) Act

The FOIP legislation disallows the practice of having student's retrieve tests and assignments from a public place. Therefore, tests and assignments may be returned to students during class/lab, or during office hours, or via the Department Office (Admin 275), or will be made available only for viewing during exam review sessions scheduled by the Department. Tests and assignments will be shredded after one year. Instructors should take care to not link students' names or UCIDs with their grades or other FOIP-sensitive information.

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 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 **Apr 14th, 2011**

Evacuation Assembly Point

In case of an emergency evacuation during class, students must gather at the designated assembly point nearest to the classroom. The list of assembly points is found at <http://www.ucalgary.ca/emergencyplan/assemblypoints>. Please check this website and note the nearest assembly point for this course.

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 403-220-5567.

Student Union VP Academic: Phone: 403-220-3911 suypaca@ucalgary.ca

Student Union Faculty Rep.: Phone: 403-220-3913 socialscirep@su.ucalgary.ca

Student Ombudsman's Office

The Office of the Student Ombuds provides independent, impartial and confidential support for students who require assistance and advice in addressing issues and concerns related to their academic careers. The office can be reached at 403-220-6420 or ombuds@ucalgary.ca (<http://www.su.ucalgary.ca/services/student-services/student-rights.html>).

Safewalk

The safewalk program provides volunteers to walk students safely to their destination anywhere on campus. This service is free and available 24 hrs/day, 365 days a year. Call 403-220-5333.

Important Dates

The last day to drop this course with no “W” notation and **still receive a tuition fee refund** is **Jan 21st, 2011**. Last day for registration/change of registration is **Jan 24th, 2011**. The last day to withdraw from this course is **Apr 15th, 2011**.