



Department of Psychology
Psychology 312 (L30) – Experimental Design and Quantitative Research Methods in
Psychology
Spring/Summer 2010 – Course Outline

Instructor:	Dr. Melissa Boyce	Lecture Location:	EDC 388
Phone:	403-210-6257	Lecture Days/Time:	Tu/Th 2 – 4:45pm
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Office Hours:	Tu/Th 12:45 – 1:45pm		

Contact your instructor regarding general course issues, questions about lecture material and course content, and grading of exams.

Course Description and Goals

This course aims to help you to develop the skills required to (a) conduct and analyze scientific research in psychology, (b) communicate your research to others, and (c) evaluate research by other psychologists. These skills are central to success as a psychology major (not to mention as a research psychologist). At a more general level, this course is designed to help you develop methodological, analytical, and communication skills that are invaluable in a wide range of everyday applications and in numerous lines of work.

Note: This course focuses on quantitative approaches. Students interested in qualitative psychological research should consider Psyc 415 - *Qualitative Inquiry in Psychology* upon completion of this course.

The laboratory component of the course is designed to facilitate experiential learning (learning by doing) of the material, and hence the lab projects are integrated with the lecture schedule.

Prerequisites

Math 30 or 31 or Mathematics II and Psyc 205 – Principles of Psychology

Required Text

Howell, D. C. (2011). *Fundamental Statistics for the Behavioral Sciences (7th Ed.)*. Belmont, CA: Thomson Wadsworth.

It is also STRONGLY recommended that you obtain a copy of the *Publication Manual of the American Psychological Association (6th Ed.)* as you will be expected to conform to APA format in all assignments you submit.

Course Website

The course website is located on blackboard: <https://blackboard.ucalgary.ca/webapps/login/>.

Notes for each week's classes will be posted at the beginning of the week. In addition, announcements, grades, and information regarding lab assignments and your research paper will be posted on this site. Web-based modules will be found here as well that you may use as an additional resource in this course.

Evaluation

Class components (60% of final grade).

Exams. There will be four exams during this course (2 scheduled during class time and 2 scheduled during the Spring and Summer final exams), each of which will be worth 15% of your mark and will cover lecture material. Exams will feature multiple-choice and short answer questions and are non-cumulative insofar as they will be limited to material covered since the previous test. However, many of the concepts in this course are inherently cumulative in that they assume knowledge and understanding of material introduced earlier.

Exam dates are as follows:

Exam 1: June 3, 2010

Exam 2: TBA (during the final exam period June 28 - 30)

Exam 3: July 29, 2010

Exam 4: TBA (during the final exam period Aug 18 - 20)

Lab components (40% of final grade).

Report. A typed, double-spaced, scientific report based on a study to be conducted during lab. The final version, worth 10% of your mark, is due at the beginning of class on Thursday, August 12. Instructions for completing your report will be posted on blackboard and provided in lab.

Labs. Each student must be registered in a lab section associated with this lecture section. There will be eleven lab assignments which in total will comprise 30% of your grade. Lab assignments will be due in hard copy at the beginning of lab (due dates indicated on lab schedule). Late assignments will not be accepted without a medical note. The grades allocated for each assignment are as follows:

Lab Assignment 1: Literature Search	3%
Lab Assignment 2: Observational Research	3%
Lab Assignment 3: Survey Research Parts 1 & 2	3%
Lab Assignment 4: Chi-Square	3%
Lab Assignment 5: Poster	3%
Lab Assignment 6: <i>t</i> -Tests	3%
Lab Assignment 7: Factorial ANOVA	3%
Lab Assignment 8: Draft of Intro & Methods	3%
Lab Assignment 9: Paired <i>t</i> -Tests	3%
Lab Assignment 10: Repeated Measures ANOVA	3%
Total	30%

NOTE: There will be components of the labs that you are expected to complete in your own time. It is extremely important that you do this work prior to the allotted deadlines as future labs will be based on the work that you do outside of the lab.

It is expected that you will complete all components of the course. If you miss an exam without medical documentation, you will receive a score of 0 for that exam. Late assignments will be deducted 5% per day (including weekends) up to a maximum of 35% (7 days), at which point, late assignments will no longer be accepted.

Students must achieve a passing grade on both the class and lab components to pass this course.

Calculators & Formula Sheets

For tests requiring computations, a non-graphics based calculator may be used. For some tests formula information will be provided at the time of the test.

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

Spring Session

Week	Date	Topic	Relevant Web Modules	Text Material	Lab Topic	Assignment Due
1	T May 18	The Science of Psychology and the Role of Statistics in Research	-Intro to Research Methods: Psychology and Science -Statistics Concepts	Ch 1 & 2	Writing Research Papers (in APA format) and Literature Search	
	R May 20	Ethics and Research Ideas and Hypotheses	-Ethics -Generating and Refining Research Hypotheses			
	F May 21	Last day to drop a course with no W grade and tuition refund. Last day for registration/change of registration.				
2	T May	Measuring and	- Measurement:		Observation	Literature

	25	Manipulating Variables and Choosing the Best Measures	Reliability, Construct Validity - Scaling and Sensitivity		al Research and Survey Research Pt 1: Survey Development	Search Assignment due at the beginning of lab for sections' 32 and 33
	R May 27	Non-Experimental Methods	-Descriptive Methods: Overview -Archival Data, Observation		No Lab for lab sections 30 and 31 (Mon's labs)	
3	T Jun 1	Non-Experimental Methods II and Review			Observational Research and Survey Research Pt 1: Survey Development	Literature Search Assignment due at the beginning of lab for sections' 30 and 31
	R Jun 3	Exam 1			No Lab for lab sections 32 and 33 (Wed's labs)	
4	T Jun 8	Internal Validity and Alternative Research Designs	-Internal Validity: Regression to the Mean		Survey Research Pt 2: Data Analysis	Observational Research Assignment due at the beginning of lab
	R Jun 10	Plotting Data		Ch. 3		
5	T Jun 15	Measures of Central Tendency and Measures of Variability		Ch. 4 & 5	Putting Together a Poster and Chi-Squares	Survey Research Assignment due at the beginning of lab
	R Jun 17	The Normal Distribution and Z-Scores	-Intro to Hypothesis Testing: The Normal Distribution -Z-Scores	Ch. 6		
6	T Jun 22	Probability Theory and Chi-Square	-Basic Concepts of Probability -Chi-Square	Ch. 7 & 19	Poster Session	Chi-Square Assignment AND posters due at the beginning of lab
	R Jun 24	Hypothesis Testing and Review	-Intro to Hypothesis Testing:	Ch. 8		

		Last day to participate in research and allocate research credits. Lecture ends.	Hypothesis Testing, Sample Distributions -Type I and II Errors, One-Tailed and Two-Tailed Tests			
	F Jun 25	Last day to withdraw.				
	M Jun 28 – W Jun 30	Final exam (scheduled by the Registrar).	Exam 2			

Summer Session

Week	Date	Topic	Relevant Web Modules	Text Material	Lab Topic	Assignment Due
7	T Jul 6	The One-Sample t-test and Confidence Limits on the Mean	-Simple Experiments and Hypothesis Test of Means: Hypothesis Testing: One Sample -Confidence Limits on the Mean	Ch. 12	Participate in online study and outline of final research paper	
	R Jul 8	Experiments with Two Groups: The t-test for Independent Groups	-The Simple Experiment: Comparing Two Groups -Hypothesis Testing: Two Independent Samples	Ch. 14		
	F Jul 9	Last day to drop a course with no W grade and tuition refund. Last day for registration/change of registration.				
8	T Jul 13	Power and Experiments with More Than Two Groups: One-Way ANOVA	-Statistical Power -Multiple Group Experiments and ANOVA: The Multiple Group Experiment -One-Way ANOVA	Ch. 15 & 16	t-tests	
	R Jul 15	Multiple Comparisons				

		and Practice with One-Way ANOVA and Multiple Comparisons				
9	T Jul 20	Factorial Designs	-Factorial Designs	Ch. 17	One-Way ANOVA: Analyze Experiment and Research Paper Q & A	t-test Assignment due beginning of lab
	R Jul 22	Factorial ANOVA	-Factorial ANOVA			
10	T Jul 27	Practice with Factorial ANOVA and Review			No Lab (all lab sections)	
	R Jul 29	Exam 3				
11	T Aug 3	Within-Subjects Designs: The Paired t-test	-Repeated Measures: Matched-Pair Designs, Within-Subject Designs -Hypothesis Testing: Related Samples	Ch. 13	Factorial ANOVA	Draft of Research Paper Intro and Methods due beginning of lab
	R Aug 5	Repeated Measures ANOVA		Ch. 18		
12	T Aug 10	Correlation and Regression I	-Correlation and Regression: Correlation -Regression	Ch. 9 & 10	Paired t-tests	Factorial ANOVA Assignment due beginning of lab Research Papers due beginning of class on Aug 12
	R Aug 12	Regression II and Multiple Regression	-Multiple Regression	Ch. 11		
13	M Aug 16	Last day to participate in research and allocate research credits.			Repeated Measures ANOVA	Paired t-test Assignment due beginning of lab
	T Aug 17	Critiquing Research and Review Lectures end. Last day to withdraw.				
	W Aug 18 – F Aug 20	Final exam (scheduled by the Registrar).	Exam 4			Repeated Measures ANOVA Assignment

						due at beginning of exam
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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.

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. **To get 2%** added to the final grade in a full-year course, like this one, you have to acquire **a total of 4 bonus credits** towards the course. These credits may be acquired in the Spring and/or the Summer Session. 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 **Aug 16th, 2010**.

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 suvpaca@ucalgary.ca

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

Important Dates

The last day to drop this course with no "W" notation and **still receive a tuition fee refund** is **May 21st, 2010**. Last day for registration/change of registration is **May 21st, 2010**. The last day to withdraw from this course is **Jun 25th, 2010**.