
Psychology 301	Research Methods and Data Analysis in Psychology II	Winter 2021
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Instructor:	Dr. Alexandra Twyman	Lecture Location:	D2L: Online, asynchronous
Email:	alexandra.twyman@ucalgary.ca	Lab TA:	Several, see D2L

Course Description

An integration of research methods and statistics in psychological research, with an emphasis on conducting and interpreting inferential statistical techniques.

Course Learning Outcomes

The Department of Psychology is committed to student knowledge and skill development. The table below lists the key learning outcomes for this course, the program-learning outcomes they facilitate (see <https://live-arts.ucalgary.ca/psychology/about#program-learning-outcomes>), and the expected level of achievement.

Course Learning Outcomes	Assessment Methods	PLO(s)	Level(s)
Identify the theoretical underpinnings of various statistical analyses and assumptions that must be met to conduct these statistical analyses	Multiple choice exams, lab assignments	3, 8	C
Identify which statistical analysis is appropriate based on a study's research question and methodology	Multiple choice exams, lab assignments	2, 3, 4, 8	C
Conduct and interpret statistical calculations by hand and using statistical software	Multiple choice exams, lab assignments	3, 8	C
Design research using appropriate methodology to test a research question	Lab Assignments	1, 2, 3, 4, 5, 7, 8	C
Effectively communicate research findings	Lab Assignments	3, 4, 5, 7, 8	C
Write all elements of a laboratory report in APA format	Lab Assignments	3, 4, 5	C
Use PSYCINFO to locate primary research relevant to a specific topic	Lab Assignments	5	A
Draw and interpret graphical depictions of data (single factor and factorial)	Multiple choice exams, lab assignments	2, 3, 4	C

Notes. PLOs = Program-Learning Outcomes: 1 = demonstrate knowledge of psychological sciences, 2 = think critically and solve problems, 3 = conduct research and analyze data, 4 = communicate effectively, 5 = demonstrate information literacy, 6 = understand and implement ethical principles in a diverse world, 7 = apply psychological knowledge and skills, 8 = Demonstrate multicultural competence and awareness of issues related to equity, diversity,* and inclusion. Level of PLO achievement facilitated by this course: I = introductory, C = competency, A = advanced.

Acknowledgments and Respect for Diversity

Our classrooms view diversity of identity as a strength and resource. Your experiences and different perspectives are encouraged and add to a rich learning environment that fosters critical thought through respectful discussion and inclusion. The Department of Psychology would also like to acknowledge the traditional territories of the people of the Treaty 7 region in southern Alberta. The City of Calgary is also home to Métis Nation of Alberta, Region III.

Course Format

Class materials will be posted to the course D2L page as per by the day/time of each scheduled class as per the course schedule below.

Prerequisites

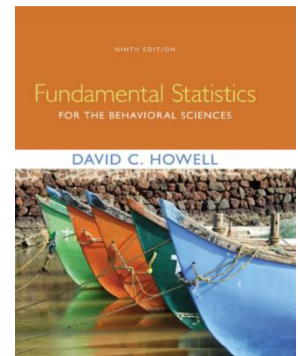
Psychology 300 (Research Methods and Data Analysis in Psychology I)

Anti-requisites

Credit for both Psychology 301 and Psychology 312 will not be allowed

Recommended Text

Howell, D. C. (2017). *Fundamental Statistics for the Behavioral Sciences* (9th Ed.). Belmont, CA: Thomson Wadsworth. Available in hard copy or e-copy from the university bookstore.



OPTIONAL Textbook

It is also recommended that you obtain a copy of the *Publication Manual of the American Psychological Association* (7th Ed.) as you will be expected to conform to APA format in all assignments you submit for this, and all future psychology courses. There are also numerous web resources to assist you in using APA format but where there is a discrepancy in the information, the official APA guidelines will be marked as correct. The manual is available in hard copy from the bookstore.



Assessment Methods

Class components (60% of final grade).

Exams. There will be two exams during this course; both exams will be multiple-choice and will focus on lecture material; both exams are worth 30%. To account for technical difficulties, 50% extra time has been added to each exam duration. Exam 1 is 2 hours in length. The Exam 2 is cumulative with an emphasis on material since Exam 1 and is 3 hours in length. Once the exam is released (dates and times below), you will have 24 hours to pick a time to write your exam.

Both exams are closed book, meaning that you may ONLY refer to documentation posted under the Exam 1 and Exam 2 tabs in D2L (which will contain formula sheets and relevant tables) but you may not refer to your notes, other posted lecture material, online resources, the textbook, or to consult with others during the completion of each exam. Exams are hosted in the quizzes function on our D2L page. Exam dates and topics are as follows:

Exam 1: Tuesday Feb 9th at 9:30 – 11:30 a.m. Topics will include, One Sample t-test, Confidence Limits on the Mean, t-test for Independent Samples and the Wilcoxon Rank Sum Test, Statistical Power, One- Way ANOVA, and Multiple Comparisons. Exam 1 will be set up as a D2L Quiz to begin on Tuesday at 9:30 a.m. You will have a 24 hour window to chose to take your exam. Once you begin the exam, you will have 2 hours to complete and submit it. Thus, exam 1 is due on Wed Feb 10th at 9:30 a.m. If you miss an exam without instructor approval, you will receive a score of 0 for that exam.

Exam 2: Thursday April 1st 9:30 a.m. – 12:30 p.m. All material in the course with an emphasis on material since Exam 1. The second exam will be set up as a D2L Quiz. You will have a 24 hour window to complete the exam. Once you begin the exam, you will have 3 hours to complete and submit it. Thus the exam is due on Friday April 2nd at 9:30 a.m. It is expected that you will complete all components of the course. If you miss an exam without instructor approval, you will receive a score of 0 for that exam.

Lab Components (40% of final grade).

The lab materials will be posted a week in advance of the lab due date to allow for sufficient completion of the lab.

ALL LABS ARE DUE AT 11:59 p.m. on Fridays on D2L in the Dropbox folder for each lab assignment

Lab Assignments (26%). There will be five lab assignments. Lab assignments will be due on Fridays at 11:59pm to the relevant D2L Dropbox (due dates indicated on course schedule below). The grades allocated for each assignment are as follows:

Lab Assignment 1: Independent Samples t-Tests 6%

Lab Assignment 2: Draft of Intro & Method 6%

Lab Assignment 3: Factorial ANOVA 2%

Lab Assignment 4: Paired t-Tests 6%

Lab Assignment 5: Repeated Measures ANOVA 6%

*Without instructor approval, **late lab 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. All assignments must be submitted in the Dropbox folder for that lab on D2L.*

Lab Report (14%). An APA-formatted report based on a study to be conducted during lab. The final version is due on Monday, April 12th at 11:59 p.m. to the D2L Dropbox. Instructions for completing your report will be posted on D2L and provided in a Final Paper Overview Vodcast to be posted with your first set of lab materials. *Without instructor approval, for the final lab report, **late submissions WILL NOT be accepted.*** All lab reports must be submitted in the Dropbox folder on D2L.

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

Calculators and Formula Sheets

For tests requiring computations, a calculator may be used. For some tests, formula information will be provided at the time of the test. No other resources are allowed during tests.

University of Calgary Academic Integrity Policy

Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity.

Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional code of conduct and promote academic integrity in upholding the University of Calgary's reputation of excellence. It is your responsibility to ensure that you have read and are familiar with the student academic misconduct policy: <https://www.ucalgary.ca/policies/files/policies/student-academic-misconduct-policy.pdf>.

Department of Psychology Criteria for Letter Grades

Psychology course instructors use the following criteria when assigning letter grades:

A+ grade: *Exceptional Performance.* An A+ grade indicates near perfect performance on multiple choice and short answer exams. For research papers/essays/course projects/presentations, an A+ grade is awarded for exceptional work deserving of special recognition and is therefore not a common grade.

A, A- Range: *Excellent Performance.* Superior understanding of course material. Written work is very strong in terms of critical and original thinking, content, organization, and the expression of ideas, and demonstrates student's thorough knowledge of subject matter.

B Range: *Good Performance.* Above average understanding of course material. Written work shows evidence of critical thinking and attention to organization and editing but could be improved in form and/or content.

C Range: *Satisfactory Performance.* Adequate understanding of course material. Knowledge of basic concepts and terminology is demonstrated. Written work is satisfactory and meets essential requirements but could be improved significantly in form and content. Note: All prerequisites for courses offered by the Faculty of Arts must be met with a minimum grade of C-.

D range: *Marginally meets standards.* Minimal understanding of subject matter. Written work is marginally acceptable and meets basic requirements but requires substantial improvements in form and content. Student has not mastered course material at a level sufficient for advancement into more senior courses in the same or related subjects.

F grade: *Course standards not met.* Inadequate understanding of subject matter. Written work does not meet basic requirements. Student has not demonstrated knowledge of course material at a level sufficient for course credit.

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 and 89.4% will be rounded down to 89% = A-).

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 **Thursday, April 15, 2021**.

Tentative Lecture Schedule

This lecture schedule is tentative and may be adapted at the lecturer's discretion.

Week	Date	Lecture Topic	Reading
1	T Jan 12	<i>Start of Classes.</i> Introduction to PSYC 301	Syllabus
	R Jan 14	The One Sample t-test	Ch. 12
2	T Jan 19	Confidence Limits on the Mean	Ch. 12
	R Jan 21	Experiments with Two Groups: The t-test for Independent Samples <i>Last day to drop Winter Term half-courses.</i>	Ch. 14
3	T Jan 26	Experiments with Two Groups: The Wilcoxon Rank Sum Test	Ch. 20
	R Jan 28	Statistical Power	Ch. 15
	F Jan 29	Lab #1 Due at 11:59 p.m. -Independent Samples t-test	
4	T Feb 2	Single Factor Experiments with More Than Two Groups: One-Way Analysis of Variance (ANOVA)	Ch. 16
	R Feb 4	Multiple Comparison Procedures	

5	T Feb 9	Exam #1 -9:30-11:30 a.m. on Tues Feb 9th. Dr. Twyman available from 9:30 to 10:45 a.m. on Tuesday Feb 9 th for exam questions. Exams due by Wed Feb 10 th at 9:30 a.m.	
	R Feb 11	Factorial Designs	
	F Feb 12	Lab #2 Due at 11:59 p.m. - Draft of Intro and Method Lab for Final Paper	
6	M Feb 15	<i>Alberta Family Day</i>	
	Feb 14-20	<i>Term Break, No Classes (University is Open, Except on Alberta Family Day)</i>	
7	T Feb 23	Factorial Designs	
	R Feb 25	Between Subjects Factorial ANOVA	Ch. 17
8	T Mar 2	Between Subjects Factorial ANOVA	Ch. 17
	R Mar 4	Within-Subjects Designs: The Paired t-test	Ch. 13
	F Mar 5	Lab #3 Due at 11:59 p.m. – Factorial ANOVA	
9	T Mar 9	Within-Subjects Designs: The Wilcoxon Signed Rank Test	Ch. 20
	R Mar 11	Repeated Measures ANOVA	Ch. 18
10	T Mar 16	Repeated Measures ANOVA	Ch. 18
	R Mar 18	Correlation	Ch. 9
	F Mar 19	Lab #4 Due at 11:59 p.m. – Pair t-test	
11	T Mar 23	Regression	Ch. 10
	R Mar 25	Multiple Regression	Ch. 11
12	T Mar 30	Chi-Square	Ch. 19
	R Apr 1	Exam #2: Exam available on March 31 st at 3:30 p.m. Dr. Twyman available from 3:30 p.m. to 4:45 p.m. on Wednesday for exam questions. Exam available until Friday April 2 nd at 9:30 a.m.	
	F Apr 2	<i>Good Friday, University Closed</i> Lab #5 - Due at 11:59 p.m. – Repeated measures ANOVA	
13	M Apr 6	<i>Easter Monday, University Closed</i>	
	T Apr 7	Final Lab Report Work Period	
14	M Apr 12	Final Lab Report Due at 11:59 p.m.	
	R Apr 15	<i>Last day of classes, last day to withdraw from winter courses</i>	

Absence From A Test/Exam

Makeup tests/exams are **NOT** an option without the approval of the instructor. Students who miss a test/exam have up to 48 hours to contact the instructor to ask for a makeup test/exam. It's the instructor's discretion if they will allow a make-up 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. **Once approved by the instructor a makeup test/exam must be written**

within 2 weeks of the missed test/exam on a day/time scheduled by the instructor. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam <https://www.ucalgary.ca/registrar/exams/deferred-exams>.

Travel During Exams

Consistent with University regulations, students are expected to be available to write scheduled exams at any time during the official December and April examination periods. Requests to write a make-up exam because of conflicting travel plans (e.g., flight bookings) will NOT be considered by the department. Students are advised to wait until the final examination schedule is posted before making any travel arrangements. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam <https://www.ucalgary.ca/registrar/exams/deferred-exams>. Students with an exceptional extenuating circumstance (e.g., a family emergency) should contact the Department of Psychology (psyugrd@ucalgary.ca).

Reappraisal of Graded Term Work <http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

Reappraisal of Final Grade <http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

Academic Accommodations

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/. Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>.

Academic Misconduct

For information on academic misconduct and its consequences, please see the University of Calgary Calendar at <http://www.ucalgary.ca/pubs/calendar/current/k.html>

Instructor Intellectual Property

Course materials created by professor(s) (including course outlines, presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the professor(s). These materials may NOT be reproduced, redistributed or copied without the explicit consent of the professor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

Copyright Legislation

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorized sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

Freedom OF Information and Protection of Privacy

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary

Student Support and Resources

<https://www.ucalgary.ca/registrar/registration/course-outlines>

Important Dates

The last day to drop this course with no "W" notation and **still receive a tuition fee refund** is **Thursday, January 21, 2021**. Last day add/swap a course is **Friday, January 22, 2021**. The last day to withdraw from this course is **Thursday, April 15, 2021** <https://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>