
PSYC 615	Analysis of Variance	Fall 2019
Instructor:	Tom O'Neill	Lecture Location: AD 051/053
Phone:	403-893-3759	Lecture Days/Time: R 1:00PM - 3:45PM
Email:	toneill@ucalgary.ca	TAs: Brittany Lindsay bllindsa@ucalgary.ca Emiko Muraki ejmuraki@ucalgary.ca
Office:	AD 264	Lab Location: SS 018
Office Hours:	By appointment	Lab Day/Time: F 1:00PM – 3:45PM

Course Description

This course covers statistical techniques that are commonly used in behavioural research, especially Psychology, and therefore emphasizes the use of linear models to analyze data that have been collected with emphasis on balanced experimental designs. The labs will provide students with opportunities to work on statistical problems related to the lectures.

Prerequisites

The course material is designed with the assumption that students have completed an undergraduate statistics course.

Required Text

Field, A., (2018). *Discovering Statistics Using IBM SPSS Statistics* (North American Edition; FIFTH ed.). University of Sussex, UK: SAGE publishing Ltd. 816 pages.

Optionally: Consider the Field book on R (2012).

Advanced, Optional Text

Maxwell, S. E., & Delaney, H. D. (2004). *Designing Experiments and Analyzing Data: A model comparison perspective* (2nd ed.). Mahwah, N.J.: Lawrence Erlbaum Associates. The companion website for this book is at www.designingexperiments.com. This text should be available from other graduate students and faculty in the department... there are many copies around. The library also has copies.

Assessment Methods

Exams: There will be a midterm and final exam, with weightings detailed below. **Please refer to *Absence From A Test/Exam* section in case of absence from the exams.**

Lab Assignments: Due by 11:59PM one week after assigned (i.e., Fridays). Each laboratory assignment will be graded by the lab following the deadline. **Assignments must be uploaded to D2L.** Save the file as: Lastname_Firstname_initial_Assignment#. **Late assignments will receive a grade of zero unless prior accommodations have been confirmed.** If you cannot submit your assignment by the due date you must contact the instructor or TA *prior to the deadline* to be considered for accommodation.

Dates and Weighting*:

Exam 1: 20% of final grade; Thursday, October 17

Exam 2: 35% of final grade; Thursday, December 5

Lab Assignments: 45% of final grade; see Lab and Exam Schedule

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

Faculty of Graduate Studies Grading System:

A+ = Outstanding performance, A = Excellent performance, A- = Very good performance

B+ = Good performance, B = Satisfactory performance, B- = Minimum pass

C+ All grades of "C+" or lower are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements. Individual programs may require a higher passing grade.

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/Activity/Readings/Due Date (revise and add columns & rows as necessary)
R Sep 5	Course Introduction <u>SPINE of Statistics: A Review of the Basics</u> – p. 39-69 & 171-181 <u>Tests to Compare Between & Within Groups</u> – p. 325-356 & 384-396 (<i>pretty much the whole text though...</i>)
R Sep 12	Last day to drop a class without a penalty
F Sep 13	Last day to add or swap a course

	<u>ANOVA, Power, Confidence Intervals & Assumptions</u> – p. 50-67, 87-90, 200-203, 186-196
R Sep 19	<u>Focused tests/Planned Comparisons</u> – Chapter 10, Chapter 12
F Sep 20	Fee payment deadline for Fall Term full and half courses.
R Sep 26	<u>Multiple Comparisons</u>
R Oct 3	<u>Factorial Designs: Main Effects, Interactions, and contrasts</u> – Chapter 14
R Oct 10	Finish remaining content/activities
M Oct 14	Thanksgiving Day, University closed (except Taylor Family Digital Library, Law, Medical, Gallagher and Business Libraries). No lectures.
R Oct 17	Midterm exam
R Oct 24	<u>Blocks and ANCOVA</u> – Chapter 13
R Oct 30	<u>Within Subjects (Repeated Measures)</u> – Chapter 15 (p. 477-499) <u>Higher Order Within</u> – Chapter 15 (p. 499-513)
R Nov 7	<u>Trend analysis</u>
Nov 10-16	Term Break No Classes
M Nov 11	Remembrance Day (Observed). University Closed (except Taylor Family Digital Library, Law, Medical, Gallagher and Business Libraries). No lectures.
R Nov 21	<u>Split-Plot/Mixed Design</u> – Chapter 16
R Nov 28	Exam Review
R Dec 5	Final Exam
F Dec 6	Fall Term Lectures End. Last day to withdraw with permission from Fall Term half courses.
Dec 9-19	Fall Final Exam Period

Tentative Lab Schedule

Date	Lab Assignment*	Assignment	Due
Sep 6	Diving into SPSS/R, descriptives & figures	Assignment 1	Sep 13
Sep 13	Assumptions, normality, t-tests (all)	Assignment 2	Sep 20
Sep 20	ANOVA & contrasts	Assignment 3	Sep 27
Sep 27	ANOVA & orthogonal contrasts	Assignment 4	Oct 4
Oct 4	Factorial ANOVA & follow-ups	Assignment 5	Oct 11
Oct 11	Midterm review/Q&A	No assignment	
Oct 18	NO LAB (week of midterm)		
Oct 25	ANCOVA & blocking Midterm exam review with Tom	Assignment 6	Nov 1
Nov 1	One-way and Higher Within-subjects Design	Assignment 7	Nov 8
Nov 8	Trend Analysis	Assignment 8	Nov 22
Nov 15	Reading Week – NO LAB		

Nov 22	Split-Plot/Mixed Design	Assignment 9	Nov 29
Nov 29	Exam review/Q&A	No assignment	
Dec 6	NO LAB		

*Exact topics may be adjusted accordingly throughout semester.

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

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

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 unauthorised 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.

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.

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 Accommodations

The student accommodation policy can be found at: ucalgary.ca/access/accommodations/policy. Students needing an Accommodation because of a Disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities ucalgary.ca/policies/files/policies/student-accommodation-policy. Students

needing an Accommodation based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the instructor.

Absence From A Test/Exam

Makeup tests/exams are **NOT** an option without the approval of the instructor. A student may be asked to provide supporting documentation for an exemption/special request for a make-up exam <https://www.ucalgary.ca/pubs/calendar/current/n-1.html>. . 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 unless there are extenuating circumstances. 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).

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 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 with their grades, UCIDs, or other FOIP-sensitive information.

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.

Wellness and Mental Health Resources

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the excellent mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, <https://www.ucalgary.ca/wellnesscentre/services/mental-health-services> and the Campus Mental Health Strategy website <http://www.ucalgary.ca/mentalhealth/>

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

The Psychology Graduate Students' Association (PGSA) is an organization built to provide support for all graduate students in the Department of Psychology. They can be contacted at pgsa@ucalgary.ca

The Graduate Student Association (GSA) Vice-President Academic can be reached at (403) 220-5997 or gsa.vpa@ucalgary.ca; Information about the GSA can be found here: <https://gsa.ucalgary.ca>

Student Ombudsman's Office

The Office of the Student Ombudsmen 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
<https://www.ucalgary.ca/student-services/ombuds>

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 Thursday, September 12, 2019.** Last day add/swap a course is **Friday, September 13, 2019.** The last day to withdraw from this course is **Friday, December 6, 2019.**