

PSYC617	Multivariate Data Analysis	Winter 2019
Instructor:	Yannick Griep	Lecture Location: AD247
Phone:	403-210-7344	Lecture Days/Time: T 1.00 – 3.45 PM
Email:	Yannick.griep@ucalgary.ca	TAs: Timothy Wingate timothy.wingate@ucalgary.ca
		TA Office: ucalgary.ca
		Lab Location: Amanda Julian ajulian@ucalgary.ca AD135 SS018
Office:	AD 256	Lab Day/Time: R 9:00-11:45
Office Hours:	By appointment	Office Hours: By appointment

Course Description and Goals

Multivariate techniques and design issues, including correlations, multiple regression, canonical correlation, logistic regression, discriminant analysis, MANOVA, linear mixed models with nested and longitudinal designs (e.g., “hierarchical linear modeling”), exploratory factor analysis, confirmatory factor analysis, path analysis, and structural equation modeling. By the end of this course you should have working knowledge of the theory and application of each statistical technique.

Required Text

Meyers, L. S., Gamst, G., & Guarino, A. J. (2013). Applied multivariate research: Design and interpretation (2nd OR 3rd ed.). Sage.

Evaluation

1. Midterm exam

- Weighting: 25% of final grade
- Exam date: February 26th, 2019 during the regular class hours
- Exam content: ALL of the materials covered up to February 12th
- Study aids (textbook and class notes) are allowed for part of the exam.
- Calculators are allowed for part of the exam.

2. Final exam

- Weighting: 40% of final grade
- Exam date: Scheduled by Registrar
- Exam content: ALL of the materials (cumulative)
- Study aids (textbook and class notes) are allowed for part of the exam.
- Calculators are allowed for part of the exam.

3. Lab assignments

- Weighting: 35% of final grade
- Brief description and due date assignment 1: Correlation and multiple regression, due on January 31, 2019 at 9AM.
- Brief description and due date assignment 2: Logistic regression, due on February 7, 2019 at 9AM.
- Brief description and due date assignment 3: MANOVA and discriminant function analysis, due on February 14, 2019 at 9AM.
- Brief description and due date assignment 4: Multilevel Models – Nested Designs, due on March 14, 2019 at 9AM.
- Brief description and due date assignment 5: Multilevel Models – Longitudinal Designs, due on March 21, 2019 at 9AM.
- Brief description and due date assignment 6: Principal component analysis and exploratory factor analysis, due on April 4, 2019 at 9AM.
- Brief description and due date assignment 7: Confirmatory factor analysis, due on April 11, 2019 at 9AM.

All assignment should be submitted via D2L at 9AM on the due date. Late assignment will be accepted but the penalty will be 10% per day, including weekends.

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-).

Date	Topic/Activity/Readings/Due Date (revise and add columns & rows as necessary)
W Jan 2	Winter term begin.
R Jan 10	Winter Lectures Begin
T Jan 15	Course overview, correlation, and other general issues in statistics
R Jan 17	Last day to drop Winter Term half-courses. Lab: Introduction to SPSS; Correlation
F Jan 18	Last day to add or swap Winter Term half courses. Last day for change of registration from audit to credit or credit to audit.
T Jan 22	Multiple Regression
R Jan 24	Lab: Correlation and Multiple Regression*
F Jan 25	Tuition Fee Deadline
T Jan 29	Logistic Regression
R Jan 31	Lab: Logistic Regression* <i>Due: Assignment 1</i>

T Feb 5	Discriminant Function Analysis (DFA) and MANOVA
R Feb 7	Lab: Discriminant Function Analysis and MANOVA* <i>Due: Assignment 2</i>
T Feb 12	DFA and MANOVA + Exam Review
R Feb 14	Lab: Exam review <i>Due: Assignment 3</i>
Feb 17-24	Reading Week. No lectures. University open (except Family Day). Alberta Family Day, University closed (except Taylor Family Digital Library, Law, Medical, Gallagher and Business Libraries). No lectures.
M Feb 18	Alberta Family Day, University closed (except Taylor Family Digital Library, Law, Medical, Gallagher and Business Libraries). No lectures.
T Feb 26	Midterm exam
R Feb 28	Lab: Exam feedback
T Mar 5	Multilevel Modeling: Nested Designs
R Mar 7	Lab: Multilevel Modeling: Nested Designs*
T Mar 12	Multilevel Modeling: Longitudinal Designs
R Mar 14	Lab: Multilevel Modeling: Longitudinal Designs* <i>Due: Assignment 4</i>
T Mar 19	Exploratory Factor Analysis
R Mar 21	Lab: EFA * <i>Due: Assignment 5</i>
T Mar 26	Confirmatory Factor Analysis
R Mar 28	Lab: CFA*
T Apr 2	Path Analysis & Structural Equation Modeling
R Apr 4	Lab: Path Analysis, and SEM and Exam Review <i>Due: Assignment 6</i>
T Apr 9	Path Analysis & Structural Equation Modeling & Exam Review
R Apr 11	Lab: Path Analysis, SEM, and Exam Review <i>Due: Assignment 7</i>
F Apr 12	Winter Term Lectures End. Last day to withdraw from full courses and Winter Term half courses.
Apr 15-27	Winter Term Final Examinations.
Apr 19	Good Friday
Apr 30	Winter Term Ends

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; no reappraisal of term work is permitted after the 15 days. 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 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 https://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf. 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 during exam make-up hours provided by the department <http://psychology.ucalgary.ca/undergraduate/exam-and-course-information#mues>. 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 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 (<http://www.ucalgary.ca/provost/students/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 **January 17, 2019**. Last day for registration/change of registration is **January 18, 2019**. The last day to withdraw from this course is **April 12, 2019**.