



PSYCHOLOGY 400A
Advanced Statistical Methods
Fall (Sept. - Dec.) 2022 : CRN 13608

Time: MR 8:30 am – 9:50 am	Room: Clearihue A326
Instructor: David Medler Email: dmedler@uvic.ca Office: COR A270 Office Hours: By Appointment	Teaching Assistant: Andrew Switzer Email: andrewcswitzer@uvic.ca Office Hours: By Appointment

COURSE DESCRIPTION AND OBJECTIVES

An introduction to advanced research designs and their underlying rationale. Extensive treatments are applied to the use of the general linear model. This class will be more of an exploration of statistics as opposed to formula memorization. Because I believe that learning and teaching is a bi-directional process between student and instructor, I anticipate that we will both prepare for each class.

REQUIRED TEXTBOOK

There is no required textbook for this class. I will make all slides available prior to lectures, as well as readings. I want this class to be an exploration of statistics and what it means to actually conduct statistics. Therefore, we will be reading some original papers to see what was actually meant (and perhaps compare that to recent interpretations).

TECHNOLOGY REQUIREMENT

If possible, **it would be good to bring a laptop to class** as we will be analyzing data. I will be using *R* and Microsoft Excel in the class. All of these programs are free (as a UVic student you have access to Excel for free). This is not necessary, however. But... at the very least, you should have a calculator.

PREREQUISITES AND REGISTRATION

The prerequisites for Ψ400A include:

1. A minimum grade of 80% in both PSYC 300A and PSYC 300B.
2. Concurrent registration in PSYC 499.

TOPICS COVERED

Visual & numerical description of univariate & bivariate data, including correlation and regression; probability theory as it relates to inferential analysis; hypothesis testing; application of *z*-test and *t*-tests to single sample designs; communication of statistical findings. Examines designs having multiple independent variables and a single dependent variable. Topics covered include correlation, multiple regression, analysis of variance and Sampling.

GENERAL FORMAT

Course material will be presented in 4 sections through (potential) e-pub readings, lectures, graded labs, and homework assignments. Please try to keep up with each topic.

BRIGHTSPACE

All course material, including detailed lecture notes, is available through BrightSpace, which you can access by logging in through MyPage or directly through bright.uvic.ca. This site will have all course lecture material with the accompanying overheads that are presented in class. It will also have blank copies of homework assignments and their respective answer keys. Most files are in pdf format.

GRADING (% OF TOTAL MARKS)

Your final grade will be a straight percentage rounded at the 0.5% level to provide a whole number for your grade (e.g., 84.50 will be rounded to 85; 84.49 will be rounded to 84)

NOTE: All deadlines & grades submitted for exams & class exercises are final. There are **no** make-up labs, **no** make-up exams, **no** bonus or extra assignments that you can do *post hoc* to alter your grades. The time to invest in achieving the best possible grade is during the course, not afterward.

COURSE EVALUATION

Comprehension of course material will be assessed through:

- (a) Performance on 2 exams (one worth 25%, one worth 15%; 40% total)
- (b) Article Critique (15%)
- (c) Final Project (worth 20%)
- (d) Group Discussions on BrightSpace (worth 10%)
- (e) In Class/Take-home R Labs (worth 15%)

Students who have completed the following required course elements will be considered to have completed the course:

- Both Exams (worth 40%)
- Final Project (worth 20%)

Failure to complete one or more of these elements will result in a grade of “N” regardless of the cumulative percentage of all other elements of the course. N is a failing grade and factors into GPA as a value of 0.

In accordance with the University’s policy on academic concessions, “A student who completes all course requirements is not eligible for an academic concession”. Consequently, students can only request deferrals for the completion of required course components and not for non-essential course components.

EXAMS: There are a total of two exams, one worth 25% and one worth 15%. Exams will be take home exams*. All grades will be posted on BrightSpace following each exam. It is your responsibility to check this posting to ensure the grade is correct.

Dates of Exams: Exam 1: Nov 17 (Thursday)
Exam 2: **Dec 5 (Monday)**. ← New Date

Exam Format: Short answer and computational with emphasis on conceptual mastery of statistical material.

Policy on missed exams: (Please read as this is important!)

You are responsible for completing the midterm as scheduled. If you miss the midterm due to illness, accident, or family affliction, or conflicting responsibilities, you must send me an email as soon as possible indicating that you have missed the midterm, and the reason for it. Students are not required to provide documentation to support their request for academic concession (e.g., medical notes) for unexpected and unavoidable issues, but must supply documentation for conflicting responsibilities. An alternative midterm will be scheduled.

If you miss the final exam, you will need to file a request for Academic Concession.

APPLICATIONS OF COURSE MATERIAL

In addition to the exams, there will be two written assignments in this class. The first is a 1-2 page critique of an article in terms of its design, data collection, and analysis. The second assignment (final project), will be based on your Honours Thesis. More details will be posted later in the course.

You will also participate in in-class group Assignments, and will have BLOG posts. Again, more detail about this will be posted later in the course.

STUDY GROUPS?

Working together in groups of 2 to 4 people on a regular basis (not just the day before the exam!) is helpful for some people. It is perfectly acceptable for a study group to come for assistance “en masse” during pre-arranged office hours.

COMPUTER SOFTWARE FOR STATISTICAL ANALYSIS (**R** AND **EXCEL**)

R is becoming more popular in statistical analysis, but it does have its pitfalls. We will be using *R* in the class on occasion, and there will be unmarked assignments based on data analysis using *R*. I will also be using Excel.

GENERAL STATEMENT OF BEHAVIOURAL EXPECTATIONS

The University of Victoria is committed to promoting, providing & protecting a positive, supportive, and safe learning and working environment for all its members and so am I. If you have any concerns regarding the activities that are intrinsic to PSYC 400A, please see me in the first week of the term.

Respect for Diversity: It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socio-economic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.

STATEMENT OF COPYRIGHT NOTICE

All lecture notes and course materials provided to you including all exams and quizzes are my intellectual property, and are made available to students for instructional purposes only. You do not have my permission to distribute my lecture notes or any exams or quizzes from the course. Such distribution, through note-sharing sites or other means, violates the Policy on Academic Integrity.

TENTATIVE SCHEDULE: PSYC 400A (Refer to Brightspace site for updated information)

Week	Date	Topic	Lab / Due Date
PART 1 — WHAT DO I DO WITH THIS DATA?			
1	08-Sep Thursday	Course Introduction — Why Statistics?	
2	12-Sep Monday	The Importance of Data	
	15-Sep Thursday	The Importance of Data	
3	19-Sep Monday	No Class - Day of Mourning	
	22-Sep Thursday	What are the Inferences of Inferential Statistics	
4	26-Sep Monday	What are the Inferences of Inferential Statistics	
	29-Sep Thursday	Cleaning Up After Yourself	Lab: Installing R
5	04-Oct Monday	The Replication Crisis in Psychology	
	07-Oct Thursday	The Replication Crisis in Psychology	
PART 2 — GENERAL LINEAR MODEL			
6	10-Oct Monday	<i>Thanksgiving - No Class</i>	
	13-Oct Thursday	The Basics of the GLM	Lab: Data Management
7	17-Oct Monday	The Basics of the GLM	
	20-Oct Thursday	t-test & ANOVA Revisited in Light of the GLM	
8	24-Oct Monday	t-test & ANOVA Revisited in Light of the GLM	Blog Post 1 due
	27-Oct Thursday	t-test & ANOVA Revisited in Light of the GLM	Lab: t-Tests/ANOVA
PART 3 — MORE COMPLICATED DESIGNS			
8	31-Oct Monday	Comparisons of Means: Planned vs. Post-Hoc	Article Critique
	03-Nov Thursday	Comparisons of Means: Planned vs. Post-Hoc	Lab: Comparisons
9	07-Nov Monday	Trend Analysis	
	10-Nov Thursday	<i>Reading Week - No Class</i>	
10	14-Nov Monday	Repeated Measures Design / Mixed Factorial	
	17-Nov Thursday	Repeated Measures Design / Mixed Factorial	Midterm 1
PART 4 — CORRELATION AND REGRESSION			
	21-Nov Monday	Correlation	
12	24-Nov Thursday	Regression	Lab: Corr/Regression
	28-Nov Monday	ANCOVA	Blog Post 2 due
13	01-Dec Thursday	ANCOVA	
	05-Dec Monday	Regression with Categorical Variables	Final Exam

UNIVERSITY OF VICTORIA

Department of Psychology Important Course Policy Information Winter Session 2022

Accessible Learning

The University of Victoria is committed to creating a learning experience that is as accessible as possible. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with me. If you have a disability or chronic health condition, or think you may have a disability, you may also want to meet with an advisor at the [Centre for Accessible Learning](#) (CAL).

Attendance and Absences

Attendance is important. Students are expected to attend all classes in which they are enrolled. Students may be assigned a final grade of N or debarred from writing final examinations if they fail to satisfy a minimum attendance requirement set by the instructor for lectures, laboratories, online course discussions or learning activities, tutorials, or other learning activities set out in the course outline.

Medical documentation for short-term absences is **not required** (approved by Senate). Students who cannot attend due to illness are asked to notify their instructors immediately. If illness, accident, or family affliction causes a student to miss the final exam or to fail to complete any required assignment/assessment by the end of the term students are required to submit a request for academic concession (see below).

Children and Pets

If you need to bring your children or pet to class, please do not hesitate to do so. It is understood that sometimes this is necessary due to care circumstances. However, please aim to have minimal class disturbance so that student learning is not impacted.

Class Recording and Auto-Captioning Statement

The instructor may record class sessions and those recordings may be made available to all students in the class via Brightspace. If you have questions or concerns regarding class recording and privacy please contact privacyinfo@uvic.ca

Auto-generated captioning may be enabled in this course. Auto-captioning is highly error-prone, especially for specialized terminology and proper names. Students are asked to refer to the audio feed for clarification of any errors. If you find captioning errors that are offensive, please contact your instructor and/or teaching assistant so that they are aware. If you require captions as part of an academic accommodation, please contact [CAL](#).

Commitment to Inclusivity, Diversity, and Respectful Environments in the Classroom and Online

The University of Victoria is committed to providing a positive and supportive and safe learning and working environment for all its members. All members of the university community have the right to this experience and the responsibility to help *create* such an environment. The University will not tolerate racism, sexualized violence, or any form of discrimination, bullying, or harassment.

Please be advised that, by logging into UVic's learning systems or interacting with online resources and course-related communication platforms, you are engaging in a University activity.

All interactions within this environment are subject to the university expectations and policies. Any concerns about student conduct may be reviewed and responded to in accordance with the appropriate university policy.

To report concerns about online student conduct: onlineconduct@uvic.ca

Copyright

All course content and materials are made available by instructors for educational purposes and for the exclusive use of students registered in their class¹. The material is protected under copyright law, even if not marked with ©. Any further use or distribution of materials to others requires the written permission of the instructor, except under fair dealing or another exception in the Copyright Act. Violations may result in disciplinary action under the [Resolution of Non-Academic Misconduct Allegations policy \(AC1300\)](#) or the [Academic Integrity Policy](#), whichever is more appropriate for the situation.

Course Experience Survey (CES)

I value your feedback on this course. Toward the end of term, you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to the instructor regarding the course and their teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to <http://ces.uvic.ca>. You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet or mobile device. You will be reminded nearer the time, but please be thinking about this important activity, especially the following three questions, during the course.

1. What strengths did your instructor demonstrate that helped you learn in this course?
2. Please provide specific suggestions as to how the instructor could have helped you learn more effectively.
3. Please provide specific suggestions as to how this course could be improved.

Disclaimer

The above schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances.

Grading

In classes that are based on a percentage grading scheme, the following [Undergraduate Grading Scale](#) is used

Grade	A+	A	A-	B+	B	B-	C+	C	D	F
Percentage	90-100	85-89	80-84	77-79	73-76	70-72	65-69	60-64	51-59	< 50
GP Value	9	8	7	6	5	4	3	2	1	0

Rounding is only applied to the final grade and is rounded up at the 0.5% level (e.g., 84.49% is round to 84% and 84.50% is rounded to 85%).

Medical Documentation for absences

No medical documentation for short-term absences is required (Approved by Senate).

If you are seeking a Withdrawal Extenuating Circumstances or an Aegrotat grade, medical documentation may be required if relevant.

Ombudsperson and Academic Concerns

From the course calendar...

Depending on the nature of the academic matter of concern to the student, the order in which the student should normally try to resolve the matter is: first, the course instructor; second, the Chair of the department; third, the Dean of the faculty; and finally, the Senate.

If you are having an academic concern or problem that cannot be resolved with your instructor or the Department Associate Chair, you may wish to consult with the Office of the Ombudsperson (<https://uvicombudsperson.ca>). Current contact information for the office can be found here <https://uvicombudsperson.ca/contact/>.

¹ Syllabi belong to the department through which the course is administered.

Policy on Academic Integrity including Plagiarism and Cheating

The Department of Psychology fully endorses and intends to enforce rigorously the [Senate Policy on Academic Integrity](#). It is of utmost importance that students who do their work honestly be protected from those who do not. Because this policy is in place to ensure that students carry out and benefit from the learning activities assigned in each course, it is expected that students will cooperate in its implementation.

The offences defined by the policy can be summarized briefly as follows:

1. **Plagiarism.** You must make sure that the work you submit is your work and not someone else's. There are proper procedures for citing the works of others. The student is responsible for being aware of and using these procedures.
2. **Unauthorized Use of an Editor.** The use of an editor is prohibited unless the instructor grants explicit written authorization.
3. **Multiple Submission.** Only under exceptional circumstances may a work submitted to fulfill an academic requirement be used to satisfy another similar requirement. The student is responsible for clarifying this with the instructor(s) involved.
4. **Falsifying Materials Subject to Academic Evaluation.** This includes falsification of data, use of commercially prepared essays, using information from the Internet without proper citation, citing sources from which material is not actually obtained, etc.
5. **Cheating on Assignments, Tests, and Examinations.** You may not copy the work of others in or out of class; you may not give your work to others for the purpose of copying; you may not use unauthorized material or equipment during examinations or tests; and you may not impersonate or allow yourself to be impersonated by another at an examination. The Department of Psychology has a policy of not making old examinations available for study purposes. Therefore, use of old exams without the express written permission of the instructor constitutes cheating by the user, and abetting of cheating by the person who provided the exam.
6. **Aiding Others to Cheat.** It is a violation to help others or attempt to help others to engage in any of the conduct described above.

Instructors are expected to make every effort to prevent cheating and plagiarism. This may include the assignment of seating for examinations, asking students to move during examinations, requests to see student identification cards, and other measures as appropriate. Instructors also have available to them a variety of tools and procedures to check for Internet and electronic media-based cheating. In instances of suspected or actual plagiarism or cheating, instructors, following prescribed procedures, are authorized to take steps consistent with the degree of the offence. These measures will range from a zero on the test or assignment or a failing grade for the course, probation within a program to temporary or even permanent suspension from the University.

Rights of Appeal are described in the Policy on Academic Integrity in the University calendar September 2022.

The definitive source for information on Academic Integrity is the University Calendar

Other useful resources on Plagiarism and Cheating include:

1. The Ombudsperson's office: <https://uvicombudsperson.ca/academic-integrity/>
The [Office of the Ombudsperson](#) is an independent and impartial resource to assist with the fair resolution of student issues. A confidential consultation can help you understand your rights and responsibilities. The Ombudsperson can also clarify information, help navigate procedures, assist with problem-solving, facilitate communication, provide feedback on an appeal, investigate and make recommendations. Phone: 250-721-8357; Email: ombuddy@uvic.ca; Web: uvicombudsperson.ca.
2. UVic Library Resources: <http://www.uvic.ca/library/research/citation/plagiarism/>
3. UVic Library Document on **Avoiding Plagiarism**

Prerequisites

Students who remain in courses for which they do not have the prerequisites do so at their own risk. Students who complete courses without prerequisites ARE NOT exempt from having to complete the prerequisite course(s) if such courses are required for the degree program.

Program Requirements

For more information see the [UVic Calendar](#).

Registration Status

Students are responsible for verifying their registration status. Registration status may be verified using My Page, View Schedule. Course adds and drops will not be processed after the [deadlines](#) set out in the current UVic Calendar.

Students who do not attend classes must not assume that they have been dropped from a course by an academic unit or an instructor. Courses that are not formally dropped will be given a failing grade, students may be required to withdraw and will be required to pay the tuition fee for the course.

Request for Academic Concessions: In the Event of Illness, Accident or Family Affliction

Request for Academic Concession form: <http://www.uvic.ca/registrar/assets/docs/record-forms/rac.pdf>

- **What to do if you miss the final exam scheduled during the formal exam period**
Apply at Records Services for a “Request for Academic Concession”, normally within 10 working days of the date of the exam. Records Services will forward the form to the instructor. If the concession is granted, the instructor will determine how to deal with the situation (for example, a deferred exam). Where a concession is not applied for or where such application is denied, an N grade will be entered on the student’s academic record.
- **What to do if you miss an exam other than one scheduled during the formal exam period**
Do not apply at Records Services for a “Request for Academic Concession”. Instead, contact your course instructor (or designated teaching assistant) to let them know why you missed the exam. Medical documentation is not required.
- **What to do if you require additional time to complete course requirements**
Apply at Records Services for a “Request for Academic Concession”, normally within 10 working days of the end of the course. Records Services will forward the form to the instructor. If the concession is granted, the instructor will determine how to deal with the situation. Where a concession is not applied for or where such application is denied, an N grade will be entered on the student’s academic record if the missing work has been deemed required. Note, only required course components may be deferred.

Research Participation Opportunities with the Department of Psychology

The Department of Psychology offers multiple opportunities to participate in research studies over the year. Students are encouraged to learn more about the field of psychology by volunteering in these studies. Information about studies can often be found posted on notice boards around the Department as well as through our Participant Pool webpage at <https://www.uvic.ca/socialsciences/psychology/research/participants/>.

Student Support Services

[Learn Anywhere](#) is the student support portal for a full range of student academic and support services. Services include: [Centre for Academic Communication](#), [Math & Stats Assistance Centre](#), [Counselling Services](#), [Health Services](#), [Library](#), [Ombudsperson](#), and [Computer Help Desk](#)

This classroom is a trans-inclusive space

Please indicate if you have a preferred name and pronoun that you’d like to be used in the classroom. Please e-mail your instructor or your TA if you would like to discuss the climate of this classroom for trans students. Gender neutral bathrooms are available at UVic.

University of Victoria Students' Society (UVSS)

The [UVSS](#) is a social justice based non-profit run by students, for students and is entirely separate from UVic. As an undergrad student, you are already a member! We work on issues affecting students such as affordability, public transit, sexualized violence, sustainability, student employment, and much more. We fund clubs and course unions, and have several advocacy groups. We also have a Food Bank and Free Store, a Peer Support Centre, and run your health and dental plan. We are here to support you, so please reach out to us at uvss.ca!

Academic Important Dates

Winter session - first term (September – December)

Wednesday, Sept 7 th	First term classes begin for all faculties
Monday, Sept 19 th	Day of Mourning - Queen Elizabeth II (No Classes)
Tuesday, Sept 20 th	Last day for 100% reduction of tuition fees for standard first term and full year courses 50% of tuition fees will be assessed for courses dropped after this date.
Friday, Sept 23 rd	Last day for adding courses that begin in the first term
Friday, Sept 30 th	National Day for Truth and Reconciliation (No Classes)
Monday, Oct 10 th	Thanksgiving Day (No Classes)
Tuesday, Oct 11 th	Last day for 50% reduction of tuition fees for standard courses 100% of tuition fees will be assessed for courses dropped after this date.
Monday, Oct 31 st	Last day for withdrawing from first term courses without penalty of failure
Nov 9 th - Nov 11 th	Reading Break for all faculties
Tuesday, Dec 6 th	National Day of Remembrance and Action on Violence Against Women Classes and exams cancelled from 11:30 am - 12:30 pm
Tuesday, Dec 6 th	(Friday course schedule) Last day of classes in first term for all faculties
Dec 8 th - Dec 21 st	First-term formal examination period

Winter session - second term (January – April)

Monday, Jan 9 th	Second term classes begin for all faculties
Sunday, Jan 22 nd	Last day for 100% reduction of second term fees for standard courses 50% of tuition fees will be assessed for courses dropped after this date.
Wednesday, Jan 25 th	Last day for adding courses that begin in the second term
Sunday, Feb 12 th	Last day for 50% reduction of tuition fees for standard courses 100% of tuition fees will be assessed for courses dropped after this date.
Feb 20 th - Feb 24 th	Reading Break for all faculties
Tuesday, Feb 28 th	Last day for withdrawing from full year and second term courses without penalty of failure
Thursday, Apr 6 th	Last day of classes in second term for all faculties
Apr 11 th - Apr 26 th	Second-term formal examination period

Sexualized Violence Prevention and Response at UVic

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting www.uvic.ca/svp. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR, Sedgewick C119

Phone: 250.721.8021

Email: svpcoordinator@uvic.ca

Web: www.uvic.ca/svp

BE WELL



A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone.

Social Life, Friends, & Community at UVic:

Having a social network is an extremely important foundation for positive mental health. There are lots of benefits to joining clubs, course unions, intramurals and teams on campus.

<https://www.uvic.ca/mentalhealth/undergraduate/connecting/index.php>

Counselling Services:

Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students. www.uvic.ca/services/counselling/

Health Services:

University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.

www.uvic.ca/services/health/

Centre for Accessible Learning:

The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations www.uvic.ca/services/cal/. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

Elders' Voices:

The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.

www.uvic.ca/services/indigenous/students/programming/elders/

Mental Health Supports and Services:

Mental health supports and services are available to students from all areas of the UVic community: www.uvic.ca/mentalhealth/undergraduate/