



UNIVERSITY OF ALBERTA
DEPARTMENT OF PSYCHOLOGY

Design and Analysis of Experiments in Psychology PSYCO 413 B1 Winter 2021

Instructor: James Farley

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Web Page: <https://eclass.srv.ualberta.ca/course/view.php?id=68705>

Office Hours: By appointment, please contact to make arrangements

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Office Hours: By appointment, please contact to make arrangements

Lecture Room & Time: T R 9:30 – 10:50 am

Lectures will be delivered in a synchronous format (i.e. ‘live’, at our regularly scheduled class time) via Zoom. A permanent link to these sessions will be available on our eClass page. Although the lectures will be delivered live, recordings of each lecture will be posted on eClass and there is no requirement to attend these lectures live.

While our course has a designated lab section (T R 11 - 12:20 am), we will not have any regularly scheduled meetings at that time. Rather, this will serve as a designated block of time in which the instructor will be available virtually to answer questions and assist students with any difficulties they encounter while completing their labs.

Course Description: Provides the background necessary to design and analyze data in any area of experimental psychology and prepares students to conduct original research. Topics include sampling distributions and hypothesis testing; issues in and analysis of between-subjects, within-subjects, and mixed designs; trend analysis; planned and post hoc comparisons; fixed and random effects factors; and efficiency and power of various experimental designs. [Faculty of Science]

Course Prerequisites: STAT 141 or 151 or SCI 151 and any 300-level PSYCO. It is the responsibility of the student to ensure they have the appropriate prerequisite(s) for the course.

Technology Requirements/Recommendations for Remote Learning: For an optimal online learning experience, please review the University guidelines for [Technology for Remote Learning](#). If a student has any questions or concerns about these requirements/recommendations, it is highly recommended that they contact the instructor at the beginning of term.

To complete the exams, students must be able to access quiz modules in eClass. This should be possible across a wide range of hardware and software. Note that it is the responsibility of the student to ensure they have made whatever arrangements are necessary to access these assessments at the scheduled times.

Student Resources for Remote Learning: Online learning may be new to you. Check out tips for success and find out more about online learning on the [Campus Life](#) page, and specifically on the [Student Resources for Remote Learning](#) page.

Course Objectives and Expected Learning Outcomes: Upon completion of the course students should have the knowledge and skills necessary to design and analyze psychological research. This includes a conceptual understanding of the basic principles and logic supporting inferential statistics as well as the ability to apply these concepts to produce defensible interpretations of data. The lab component of the course is designed to further develop these skills in an applied context, along with the communication skills necessary to clearly and concisely communicate analyses and interpretations of data.

Required Textbook: Myers, Well, & Lorch (2010). Research Design & Statistical Analysis. 3rd. Ed.

Note that University of Alberta students have free/unlimited access to this text via the library (<https://ebookcentral.proquest.com/lib/uAlberta/reader.action?docID=1112541>).

Important Dates: See the current Calendar for the [Academic Schedule, Dates, and Deadlines](#), which include the Registration Add/Drop deadline and Withdrawal date.

Lecture Schedule & Assigned Readings:

Week/Dates	Topic	Readings
1: Jan 12, 14	Planning Research, Exploring Data	1, 2
2: Jan 19, 21	Probability, Hypothesis Testing	3, 4
3: Jan 26, 28	Foundations, The t Distribution	5, 6
4: Feb 1	Lab 1 Due	
Feb 2, 4	Between-Subjects: One Factor	8
5: Feb 9, 11	Between-Subjects: Multiple Factors	9
6: Feb 16, 18	<u>Reading Week (no class)</u>	
7: Feb 22	Lab 2 Due	
Feb 23, 25	Contrasting Means	10
8: March 2, 4	Integrated Analysis	7, 12
9: March 8	Lab 3 Due	
March 9	Midterm	
March 11	Repeated Measures	14
10: March 16, 18	Repeated Measures: Multiple, Mixed	15
11 March 22	Lab 4 Due	
March 23, 25	Correlation and Regression Intro	18
12: March 30 April 1	Regression II	19
13: April 6	Lab 5 Due	
April 6, 8	Multiple Regression	21
14: April 13, 15	Concluding Thoughts	
15: April 20 (tentative)	Final Exam	

Grade Evaluation:

Please note that, while the following table contains an approximate guideline for the course, the instructor reserves the right to adjust this table and assign appropriate grades based on relative performance.

Distribution of Grades												
Letter grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F
% Range	≥95	90-94	85-89	80-84	75-79	71-74	67-70	63-66	60-62	55-59	50-54	<50
Grade points	4.0	4.0	3.7	3.3	3.0	2.7	2.3	2.0	1.7	1.3	1.0	0
Descriptor	Excellent			Good			Satisfactory			Poor	Minimal Pass	Fail

Grades are unofficial until approved by the Department and/or Faculty offering the course.

Components of Course Grade:

Assessments	Weighting	Date
Lab 1	7%	Feb 1
Lab 2	7%	Feb 22
Lab 3	7%	March 8
Midterm	25%	March 9
Lab 4	7%	March 22
Lab 5	7%	April 6
Final Exam**	40%	April 20 ***

**** Re-examination:** A student who writes the final examination and fails the course may apply for a re-examination. Re-examinations are rarely granted and are governed by University Regulations and Faculty Regulations (see Calendar information on Academic Standing for Faculty of Science). Misrepresentation of Facts to gain a re-examination is a serious breach of the *Code of Student Behaviour*.

***** WARNING:** Students must verify this date on BearTracks when the Final Exam Schedule is posted.

Format of Exams: The midterm will be accessible on the scheduled day identified in this syllabus (March 9th) at our regularly scheduled class time (9:30 am) via eClass. The exams will not require any additional software (e.g. ExamLock, SEM, etc.). Students will have 80 minutes to complete their responses. At 10:50 am, any responses that are still in progress will be automatically submitted by eClass. The midterm will consist of a mixture of multiple-choice and short-answer questions. Students may consult their own

personal resources while completing the exams (i.e. the textbook, lecture slides, their own notes). In other words, these will be in an 'open-book' format. However, students are not permitted to collaborate with anyone else during these exams and doing so would constitute academic misconduct. A practice quiz will be provided to formalize students with this format.

Format of Final Exam: The final exam will be in a similar format as the midterm (a mixture of multiple-choice and short-answer questions). Additionally, students will be asked to respond to two long-answer format questions. These questions will be given to students 72 hours before the final exam, allowing them to prepare those responses prior to the scheduled exam day. The final exam will be cumulative. As with the midterm, this exam will be completed via eClass and not require any additional software. Students may consult their own personal resources while completing the exam (is 'open book'). Collaboration with other students is not permitted (and doing so would constitute academic misconduct).

Lab Component: This course includes a lab-based component. Starting during the second week, labs will be assigned approximately every two weeks. The program we will be using ('R') is open source (i.e. available at no cost) and freely available for both PC and Mac platforms. No prior experience or knowledge related to either programming or this particular application is required or assumed. The labs will involve exploring, analyzing, and interpreting datasets. In addition to submitting saved copies of the code you produce while completing the labs, students will also be asked to provide a brief report explaining their results and interpretation.

Attendance: Please refer to the Calendar policies on [Attendance](#).

Representative Evaluative Material: Sample exam questions will be provided on eClass before the midterm.

Missed Term Exams and Assignments: For an excused absence where the cause is religious belief, a student must contact the instructor(s) within two weeks of the start of Fall or Winter classes to request accommodation for the term (including the final exam, where relevant). Instructors may request adequate documentation to substantiate the student request.

A student who cannot complete an exam or assignment due to incapacitating illness, severe domestic affliction or other compelling reasons must contact the instructor as soon as possible (and at the very latest, within 48 hours of missing one). At the discretion of the new instructor, a student may be allowed to either complete the exam or assignment at another time or reallocate the associated course weight towards something else (e.g. another exam).

In the event that a shift in weighting to the final exam increases its weight to >40%, this does not change the original 'syllabus weight', meaning the student does not now qualify for possible re-examination. Transferring the weight of missed quizzes to the final exam could result in the student not being approved for a deferred final examination as they

may not have completed the required 50% of term work. In all cases, instructors may request a declaration to substantiate the reason for the absence, at their discretion. The Psychology Statutory Declaration form can be downloaded from the Documents folder on the Psychology Intranet. Deferral of term work is a privilege and not a right; there is no guarantee that a deferral will be granted. Misrepresentation of Facts to gain a deferral is a serious breach of the Code of Student Behaviour.

While deferral of term work/quizzes is under the discretion of the instructor, a student must apply to their Faculty for a deferral of a final exam (see below). Students granted a deferral for the midterm will write it on March 16th.

Deferred Final Examination: A student who cannot write the final examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply to their Faculty for a deferred final examination. Students who failed at the start of term to request exam accommodations for religious beliefs are expected to follow the normal deferred final examination process. Such an application must be made to the student's Faculty office within two working days of the missed examination and must be supported by appropriate documentation or a Statutory Declaration (see Calendar for information on [Attendance](#)). Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of Facts to gain a deferred examination is a serious breach of the *Code of Student Behaviour*.

STUDENT RESPONSIBILITIES:

Guidelines for Respectful Online Engagement: Students from many different backgrounds participate in courses at the University of Alberta. Sexist, racist, homophobic comments and other inflammatory remarks are not conducive to learning in our courses, and absolutely are not permitted. All participants are governed by the [Code of Student Behaviour](#). Be mindful when discussions involve controversial topics or issues, and consider the possibility that members of our community have themselves experienced some of these issues and/or very different realities because of these issues. Participate in a respectful and considered manner.

If you are witness to or the target of abusive or offensive behaviour in any course, please inform your instructor immediately. You may also contact the Psychology Undergraduate/Graduate Advisor, Associate Chair of Undergraduate/Graduate, or Chair.

Academic Integrity: The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the [Code of Student Behaviour](#) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should consult the [Academic Integrity website](#) for clarification on the various offences. If you have any questions, ask your instructor. All forms of dishonesty are unacceptable at the University. Any offence will be reported to the Associate Dean of

the Faculty, who will determine the disciplinary action to be taken. See the [Academic Discipline Process](#). Typical sanctions include conduct probation, a mark reduction or a mark of 0 on an assessment, a grade reduction or a grade of F in a course, a remark on the transcript, and a recommendation for suspension or expulsion from the University of Alberta.

Students should refer to the Calendar information on [Conduct of Exams](#) for more information.

Recording and/or Distribution of Course Materials: Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

STUDENT RESOURCES:

COVID-19 Updates: Updates pertaining to university-related activities can be found on the [COVID-19 Information website](#).

Student Services and Resources: General information about various services, including academic, financial, health and wellness, safety, and career development, can be found on the website for [Current Students](#).

Accessibility Resources (AR) (1 – 80 SUB): The University of Alberta is committed to creating work and learning communities that inspire and enable all people to reach their full potential. AR promotes an accessible, inclusive, and universally designed environment. For general information to register for services visit the [Accessibility Resources](#) webpage. Eligible students have both rights and responsibilities with regard to accessibility-related accommodations. Consequently, scheduling exam accommodations in accordance with AR deadlines and procedures is essential, and adherence to procedures and deadlines is required for U of A to provide accommodations.

Academic Success Centre (1-80 SUB): [The Academic Success Centre](#) provides professional academic support to help students strengthen their academic skills and achieve their academic goals. Individual advising, appointments, and group workshops are available year round in the areas of Accessibility, Communication, Learning, and Writing Resources. Modest fees apply for some services.

The Centre for Writers (1-42 Assiniboia Hall): The [Centre for Writers](#) offers free one-on-one writing support to students, faculty, and staff. Students can request consultation for a writing project at any stage of development. Instructors can request class visits and presentations.

First Peoples' House: [The First Peoples' House](#) provides an environment of empowerment for First Nations, Métis, and Inuit learners to achieve personal and academic growth.

Health and Wellness Support: There are many health and community services available to current students. For more information visit the [Health and Wellness Support](#) webpage.

Office of the Student Ombuds: The [Office of the Student Ombuds](#) offers confidential interviews, advice and support to students facing academic, discipline, interpersonal and financial difficulties.

LEARNING AND WORKING ENVIRONMENT

The Department of Psychology, Faculty of Arts, and Faculty of Science are committed to ensuring that all students, faculty, and staff are able to work and study in an environment that is safe and free from discrimination, harassment, and violence of any kind. It does not tolerate behaviour that undermines that environment. This includes virtual environments and platforms.

The University of Alberta acknowledges that we are located on Treaty 6 territory, and respects the histories, languages, and cultures of the First Nations, Métis, Inuit, and all First Peoples of Canada, whose presence continues to enrich our vibrant community.

Policy about course outlines can be found in the [Evaluation Procedures and Grading System](#) section of the University Calendar.

Disclaimer: Any typographical errors in this syllabus are subject to change and will be announced in class and/or posted on the course website (e.g., eClass). The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this syllabus.

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