



Department of Psychology
Psych 292
Basic Data Analysis
Tuesdays, Thursdays 10:00am – 11:20am, AL 116

Instructor and T.A. Information

Instructor: Dr. Paul Wehr

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Office Hours: Tuesdays, Thursdays: 11:30am - 12:30pm

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Course Description

PSYC292 will introduce students to the fundamentals of descriptive and inferential statistics used in psychological science. We will emphasize a deep understanding of statistical principles rather than the application of “cookbook” statistical formulas.

COURSE GOALS AND LEARNING OUTCOMES

Upon completion of this course, students should:

- A. Possess a fundamental, deep understanding of descriptive and inferential statistics, and be prepared to augment this understanding in upper-year statistical courses.
- B. Be able to select and conduct basic statistical analyses.
- C. Refine their ability to read and interpret research results reported in the literature.
- D. Become a more critical “consumer” of reported research findings in the literature and the media.

Information Available on LEARN

The course web page can be found on LEARN (<https://learn.uwaterloo.ca/>). Here, you will find links to the syllabus, lecture slides, and important announcements. I will do my best to have slides for the upcoming lecture available at least 24 hours in advance of class time.

Textbook

In lieu of a traditional textbook, students will be asked to subscribe to an online “course” called Statistical Reasoning, which is part of the Open Learning Initiative (OLI) at Carnegie Mellon University. To register, please follow the following instructions:

1. Go to [OLI’s website](http://oli.cmu.edu/) (<http://oli.cmu.edu/>), and “sign up” (top right corner)
2. Enter your full first name and last name, **as they appear on LEARN**
3. IMPORTANT: Enter your **uWaterloo email** address as your “Account ID”. If you do not, we will not be able to match your records across the OLI and LEARN systems, and you will not receive grades for your assignments.
4. There is **NO fee** to use the OLI resource this term.
5. Once you have finished signing up, a page called “My Courses” will appear. Under my academic courses, enter the following course key: **psy292uw2017**

Tutorials

Tutorials begin during the second week of the semester. Your TA will guide the group through solutions to a set of target exercises. These target exercises are drawn from midterms given in previous years. The target exercises to be covered each week will be posted on LEARN in advance. You will likely find the tutorials to be more helpful if you have attempted to solve the problems for yourself prior to each meeting. Although attending tutorials is optional, many students find the tutorials to be the most helpful feature of the course.

Calculators

For the tutorial exercises, midterms, and final exam, you will find it helpful to have a calculator, ideally with basic statistical functions (e.g., standard deviation). Please bring your calculator to every class meeting and every tutorial. For exams, students are not permitted to use smartphones or other internet-enabled devices instead of a calculator.

Course Assessment

Assessment for this course is primarily based on a series of three midterms, each worth 20%, and a cumulative final exam that is worth 30%. There will also be a series of checkpoints, which are mini-assignments delivered through the online textbook.

Assessment	Weight
Checkpoints (14 total)	10%
Midterm Exams (3 total)	60%
Final Exam	30%
Total	100%

Checkpoints

Students are required to complete 14 relatively brief, online assessments through OLI's website (<http://oli.cmu.edu>). These checkpoints are intended to help you check your comprehension of material and to keep you on track with the assigned reading. Your grade will reflect the best 12 out of 14 checkpoint scores.

You are allowed up to two attempts for each checkpoint and will receive feedback on each attempt. Your final score for each checkpoint will be determined by the percentage of correctly answered items from your best-scoring attempt. Online checkpoints are due by 23:59 (11:59 PM) on their designated due dates. Students will not be able to submit checkpoints after this time. Missed checkpoints will receive a grade of zero (no exceptions).

Checkpoint Topic	Due Date
Examining Distributions 1	Jan 13
Examining Distributions 2	Jan 20
Random Variables	Feb 03
Sampling Distributions 1 & 2	Feb 10*
Estimation	Feb 17
Hypothesis Testing for Population Proportions and Means	Mar 03*
Two Independent Samples and Matched Pairs	Mar 10*
Examining Relationships 1 & 2	Mar 24*
Case $C \rightarrow C$ and $Q \rightarrow Q$ and Inferences for Relationships	Mar 31*

*** note that there are two checkpoints due on these dates!**

Examinations

MIDTERMS: There will be three 60-minute midterms taking place during class time on the date they are scheduled. Technically, these exams are non-cumulative, but topics covered in this course naturally build on one another. For example, to carry out a t-test (covered on Midterm 3), you need to know how to calculate a standard deviation (covered on Midterm 1). All exams are closed-book, but formula sheets and statistical tables will be provided at the exam. You can preview the formula sheets on LEARN.

Together the three midterms will account for 60% of your final grade. Your highest test score will count for 25% and your lowest for only 15%, with the intermediate score counting for 20%. Out of fairness to other students, please note that the instructor cannot offer any further changes in the weighting of the unit tests and final exam, or additional work for extra credit.

If you have a concern about how an item on an examination was marked, please first consult the answer key (posted on LEARN). If the answer key does not address your concern, please arrange to discuss the matter further with the TA who marked the item; the answer key will indicate who marked each item. If you still feel that your concern has not been addressed, please put it in writing and submit it to the instructor, who will then discuss it with the TA and make a final decision.

FINAL EXAM: The final exam is cumulative and will take place during the final exam period. The exact date will be announced later in the term after the university publishes the final exam schedule. Once again, relevant statistical formulas and tables will be provided. Students may also bring one additional (double-sided) page of their own notes. This single sheet may be hand-written or typed.

POLICY ON MISSED EXAMINATIONS: If an exam is missed for a legitimate reason (e.g., illness or kidnapping), valid documentation (e.g., a verification of illness form or ransom note) is required in order to avoid receiving a zero for that exam. Make-up exams will ONLY be provided for students with valid absences. Please submit your documentation to the instructor as soon as possible. Absence due to *religious holiday* is a valid excuse, but notify your instructor at the beginning of the course in the event of a conflict. Absences for varsity athletics, family obligations, co-op interviews or other similar engagements are NOT part of University policy and students should not assume that they will be accommodated. If you have a pressing issue that conflicts with an exam, you should discuss this with your instructor as soon as possible.

Correspondence

PSYC 292 has high enrolment. Typically, we receive an overwhelming number of e-mail messages from students with questions about course content, assignments, midterms, etc. Several discussion forums have been created on LEARN for students to communicate with each other and with the Instructor and TAs. Posting queries and comments on the discussion forum is preferable to e-mail because, chances are high, that other students have the same question as you. It also helps to facilitate interaction between students in large classes.

Before posting on the discussion forums, however, please be sure to check existing postings, announcements on LEARN and the syllabus to avoid redundancies. You should contact the instructor if you have questions about the lecture material. Please contact YOUR TA if you have questions about the tutorial content. Also, remember that the instructor has office hours following each class and welcomes students to attend as often as you wish. For sensitive or personal issues unrelated to course content, please e-mail the instructor directly or visit during office hours.

Succeeding in PSYC292

MANY students struggle with statistics. If you find this is your experience, don't panic but you might find it necessary to work harder, collaborate more with classmates, and seek out more help. Here are some things you can do to more effectively learn the material and enjoy the course:

- Carefully complete assigned readings each week before the lecture
- Complete the "Learn by Doing" and "Did I Get This?" activities as you encounter them while doing the assigned reading in the online textbook
- Test your understanding by completing the problem sets, which are examples of questions from previous midterm and final examinations (all downloadable from LEARN)
- Don't be afraid to ask questions in lecture and in tutorials if you don't understand something. All students have gaps in their knowledge. Good students identify those gaps and fill them by asking questions.
- Visit the instructor and/or your TAs during office hours if you need additional help.
- Consult the Psychology Undergraduate website "Student Success" section "Psych 292 or Psych 391 tips for success" (<https://uwaterloo.ca/psychology/current-undergraduate-students/student-success#Psych292-391-Success>)

Accommodation for Students with Disabilities

The AccessAbility Services office, located on the first floor of the Needles Hall extension, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

<https://uwaterloo.ca/disability-services/>

Counselling & Psychological Services

The Counselling & Psychological Services office at the University of Waterloo, located on the second floor of the Needles Hall extension, offers a variety of resources for those struggling with the challenges of university life, including coping skills seminars and workshops, peer support, group therapy, and clinical referrals. Their home page is:

<https://uwaterloo.ca/counselling-services/>

Student Success Office

The Student Success Office at the University of Waterloo, located on the second floor of South Campus Hall, offers tutoring, workshops, success coaching, and a variety of other resources for students looking for guidance to be successful in university. Their home page is:

<https://uwaterloo.ca/student-success/>

Writing Centre

The Writing Centre, located on the second floor of South Campus Hall, works across all faculties to help students clarify their ideas, develop their voices, and communicate in the style appropriate to their disciplines. Writing Centre staff offer one-on-one support in planning assignments, using and documenting research, organizing papers and reports, designing presentations and e-portfolios, and revising for clarity and coherence.

You can make multiple appointments throughout the term, or drop in at either the Dana Porter or Davis Centre libraries for quick questions or feedback. Group appointments for team-based projects, presentations, and papers are also available. To book a 50-minute appointment and to see drop-in hours, visit:

<https://uwaterloo.ca/writing-centre/>

Concerns About the Course or Instructor (Informal Stage)

We in the Psychology Department take great pride in the high quality of our program and our instructors. Though infrequent, we know that students occasionally find themselves in situations of conflict with their instructors over course policies or grade assessments. If such a conflict arises, the Associate Chair for Undergraduate Affairs (Dr. Myra Fernandes) is available for consultation and to mediate a resolution between the student and instructor. Dr. Fernandes' contact information is as follows: Email: mafernan@uwaterloo.ca, Phone: 519-888-4567, x32142. A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. See Policy 70 and 71 below for further details.

Academic Integrity

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 – Student Discipline.

<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71>

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 – Student Petitions and Grievances, Section 4.

<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70>

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 – Student Appeals.

<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72>

Other sources of information for students

Academic Integrity (Arts): <https://uwaterloo.ca/arts/ethical-behavior>

Academic Integrity Office (uWaterloo): <https://uwaterloo.ca/academic-integrity/>

Withdrawal Dates

Withdrawal deadline and receive no penalty: January 23rd, 2017

Withdrawal deadline to receive “WD” on transcript: March 17th, 2017

Withdrawal deadline to receive “WF” on transcript: April 6th, 2017

Term Schedule

Week	Dates	Lecture Topics	Reading Assignment	Assessment
1	Jan 03 & 05	Descriptive Statistics	Course Outline Modules 2, 3 & 4.	
2	Jan 10 & 12	Probability	Module 8	
3	Jan 17 & 19	Random Variables	Module 9	
4	Jan 24 & 26	Normal Distributions	Module 9	Midterm 1 (Jan 26 th)
5	Jan 31 & Feb 02	Sampling Distributions	Module 10	
6	Feb 07 – 09	Confidence Intervals	Module 11 & 12	
7	Feb 14 – 16	Hypothesis Testing: One Sample Tests	Module 13 (Except Type I and Type II error)	
	Feb 20 - 24	READING BREAK		
8	Feb 28 – Mar 02	Hypothesis Testing: Related & Independent Samples	Module 14	Midterm 2 (Feb 28 th)
9	Mar 07 – 09	Effect Size & Power	Module 13 Type I & Type II Error and Power Module (http://wise.cgu.edu/portfolio/)	
10	Mar 14 – 16	Correlation	Module 5 (pg 42 – 51)	Midterm 3 (Mar 16 th)
11	Mar 21 – 23	Regression	Module 5 (pg 52 – end) Module 12 (Case Q → Q) Module 15 (Case Q → Q)	
12	Mar 28 – 30	Chi Square & Test Selection	Module 5 (Case C → C) Module 15 (Case C → C) Module 15 (Wrap up: Inference for Relationships)	

Note: Lecture topics BEGIN during the week they are scheduled, but will often spill over into the following week before completed.