

Instructor Prof **James T. Enns** Email: jenns@psych.ubc.ca
Lectures TTh 11:00 am - 12:20 pm on Canvas Zoom
Recorded for those unable to attend synchronous activities.

Teaching Assistants **Raymond MacNeil** Email: raymond.macneil@psych.ubc.ca
Ke Zhang Email: kezhang@psych.ubc.ca
Labs Th 2:00 pm / 4:00 pm on Canvas Zoom
Recorded for those unable to attend synchronous activities.

Course Description

In this course you will become an informed consumer and user of statistical methods. This includes learning how to organize data, performing statistical procedures, planning experiments, and communicating your research in words and print. There are two distinct parts to the course. One deals with the nuts and bolts of statistical analysis and research design; this will be covered in Tuesday-Thursday lectures and the Pagano textbook. A second part deals with the computer-assisted analysis of data sets and the presentation of scientific information; this laboratory component runs in parallel to the lectures on Thursday. And to reflect this intensity, this course is worth 4 credits (not the usual 3). The Teaching Assistants are entirely responsible for setting and grading your assignments in this portion of the course. More details concerning this part of the course will be given to you in the introductory lab scheduled for this course.

Approach to Learning

Lectures cover basic statistical concepts and methods. There is much overlap with the textbook, but lecture material is presented from a somewhat different perspective, in order to give optimal opportunity for different learning styles. Lectures and assignments emphasize "active learning." You will be encouraged to ask "what if?" and "let's see how things look differently if we do them this way."

Requirements

Calculator It is your responsibility to bring one to each class and exam. It should have basic memory functions and square/square root functions. You will not be permitted to use devices with outside connectivity (i.e., phones).

Laptop/Tablet We will use some open source software in class to illustrate ideas.

<https://www.jamovi.org/download.html>

Please download a version that works on your device and have it available in class. We will **not** access this software on tests.

Old-fashioned notebook Absolutely essential! In this class we will use paper, you will work on problems by hand on paper, you will create your own notes to be used in exams on paper, you will hand in responses on sheets of paper you tear out of your notebook. You will need paper!

Textbook Understanding Statistics (10th edition or earlier), by R. Pagano

Labs Assignments

Pagano contains many end-of-chapter homework questions and answers to many of these questions can be found at back of text for quick corrective feedback. Selected portions of these homework questions will form the basis of lab assignments, where you will learn how to use the [R Language and Environment for Statistical Computing](#) to assist you in the organization, visualization, and analysis of data. To participate in the lab activities and to complete the assignments, you will need to download both [R](#) and [RStudio](#). This is opensource software, and therefore is available at no cost to you. Although the lab slides and handouts will cover the essentials of R programming and syntax required for the assignments, you may find it helpful to also consult the following open-source reference materials:

- [Learning Statistics with R](#)
- [R for Data Science](#)
- [Hands-On Programming with R](#)

Grading

Lecture Components	
Quizzes (3 @ 15%)	45%
Final Exam	25%
Lab Components	
Written Assignments (8 @ 2%)	16%
Lab Final Exam	14%

Missed Exam and Assignment Policy

Only medical reasons will be accepted for missing an exam or assignment. For any absence you must notify me (jenns@psych.ubc.ca) or the Psychology Department office (822-2755) in advance of the deadline. If you show up AFTER a deadline saying you were sick, you will receive no credit.

Academic Concession

Please consult the evolving UBC guidelines on academic concession and student self-declaration. <http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,329,0,0#26573>

Psychology Department's Position on Academic Misconduct

Cheating, plagiarism, and other forms of academic misconduct are very serious concerns of the University and the Department of Psychology has taken steps to alleviate them. Strong evidence of cheating or plagiarism may result in a zero credit for the work in question. According to the University Act (section 61), the President of UBC has the right to impose harsher penalties including (but not limited to) a failing grade for the course, suspension from the University, cancellation of scholarships, or a notation added to a student's transcript. All graded work in this course, unless otherwise specified, is to be original work done independently by individuals. If you have any questions as to whether or not what you are doing is even a borderline case of academic misconduct, please consult your instructor. For details on University policies and procedures, please see Student Conduct and Discipline in the UBC Calendar www.calendar.ubc.ca/vancouver/index.cfm?tree=3,54,0,0

LECTURE SCHEDULE (Tue & Thurs 11-12:30)

Week	Chapter	Topic	Date
1	Pagano 3	Introduction Frequency Distributions	Jan 12
2	Pagano 4	Central Tendency Variability	Jan 19
3	Pagano 5	Standard Scores Normal Distribution	Jan 26
4	Quiz 1		Tuesday Feb 02
	Pagano 6	Correlation	
5	Pagano 7	Regression	Feb 09
	----- READING BREAK -----		
6		Correlation / Regression	Feb 23
	Quiz 2		Thursday Feb 25
7	Pagano 10	Hypothesis Testing	Mar 02
8	Pagano 11	Statistical Power	Mar 09
9	Pagano 12	Sampling Distributions, z-test	Mar 16
10	Quiz 3		Tuesday Mar 23
	Pagano 13	t-test single sample	
11	Pagano 14	t-test groups	Mar 30
12	Pagano 15	Analysis of variance	Apr 06
Final Exam		UBC Schedule TBA	

LAB SCHEDULE (Thursday 2-4, 4-6 pm)

A total of eight (8) lab assignments + a final lab exam

Lab	Topic	Date
1	Intro to Data Management and R	Jan 14
2	Chaps 3 and 4 Freq Distributions, Averages & Variance	Jan 21
3	Chap 5 Standard Scores & Normal Distribution	Jan 28
	No Lab since Quiz 1 on Tuesday this week	Feb 04
4	Chaps 6 and 7 Correlation & Regression	Feb 11
----- READING BREAK -----		
	No Lab since Quiz 2 on Thursday this week	Feb 25
5	Chaps 10 and 11 Hypothesis Testing and Power	Mar 4
6	Chap 12 Sampling Distributions & z-test	Mar 11
7	Chap 13 and 14 t-tests	Mar 18
	No lab since Quiz 3 on Tuesday this week	Mar 25
8	Chap 15 and 16 ANOVA	Apr 01
	Final Lab Exam	Apr 08

* Expect the end of year grades to have a mean of 75% and a standard deviation of 11%.

** All grade appeals must be made in writing to the Instructor