Tue-Thur 11-1220   **Lectures in CHBE 101**
Instructor   Prof James T. Enns   Email: jenns@psych.ubc.ca
Lecture TA   Raymond Wu   Email: rwu@psych.ubc.ca

Fri 1-3 or 3-5   **Labs in LASR 104-105**
01 Fri 1-3 pm   Manlu Liu   Email: manlu.liu@psych.ubc.ca
02 Fri 1-3 pm   Raymond MacNeil   Email: raymond.macneil@psych.ubc.ca
03 Fri 3-5 pm   Sam Good   Email: sam.good@ubc.ca
04 Fri 3-5 pm   Christopher Mok   Email: chrismok@student.ubc.ca

Course Description
This course helps you become an informed consumer and user of statistical methods. This includes learning how to organize data, perform statistical procedures, plan experiments, and communicate your research in words and visually. 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 lectures and in the Pagano textbook. A second part deals with the computer-assisted analysis of data sets and the presentation of scientific information; this lab component runs in parallel to the lectures. 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 will be given in the introductory lab sessions.

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

We will use some open-source software in class to illustrate ideas, so bring your **laptop/tablet**. 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** is absolutely essential! In this class we 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

Lab Assignments & Extra Practice
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. 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	23%	
Lab Components		
Written Assignments (8 @ 2%)	16%	
Lab Final Exam	14%	
NURC Participation (Sat, Mar 22, noon-6pm)	1%	
Study Buddy Program Exit Survey	1%	

Lecture-based quizzes are conducted on Canvas using Lockdown Browser. During midterm quizzes you are not required to be in the classroom but you must do the quiz alone and without any secondary devices. You will be required to sign an honor pledge that covers both your own work and notifying me if you have evidence that others are violating this pledge.

Labs Lab TAs are entirely responsible for setting and grading your assignments in this portion of the course. More details will be given in the introductory lab sessions.

NURC The UBC Neuroscience Association is hosting its 9th Annual Neuroscience Undergrad Research Conference on Saturday, March 22nd from 12:00pm-6:00pm! NURC gathers over 300 students, presenters, and faculty to celebrate our passion for neuroscience and our outstanding undergraduate researchers! Expect to see career panels, workshops, student poster/oral presentations, and a keynote speech by a leading neuroscientist. The signup form will be sent out in early February.

Study Buddy Program Details to come following the first quiz in the course at the end of January.

Classroom conduct is your responsibility
Joining in person is your pledge to engage the material. If your device(s) are not engaged directly on course material you will be asked to leave the room. Self-study and entertainment can be done in another time and place.

AI tools are not allowed on assignments, quizzes, and exams
The use of generative AI tools, including ChatGPT and other similar tools, to complete or support the completion of any assignment or assessment in this course is not allowed and will be treated as academic misconduct. Use of AI tools is not permitted during midterm quizzes, labs, and final exams in this course.

Missed Exam and Assignment Policy
Advance notice is key! 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 were caring for someone 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

UBC'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 07-09
2	Pagano 4	Central Tendency, Variability		Jan 14-16
3	Pagano 5	Standard Scores, Normal Distribution		Jan 21-23
4	Quiz 1		Tuesday	Jan 28-
	Pagano 6	Correlation		Jan 30
5	Pagano 7	Regression		Feb 04-06
6		More Correlation and Regression		Feb 11-13
	----------------- READING BREAK Feb 17-21 -----------------			
7	Quiz 2		Tuesday	Feb 25-
	Pagano 10	Hypothesis Testing		Feb 27
8	Pagano 11	Statistical Power		Mar 04-06
9	Pagano 12	Sampling Distributions, z-test		Mar 11-13
10	Quiz 3		Tuesday	Mar 18-
	Pagano 13	t-test single sample		Mar 20
11	Pagano 14	t-test groups		Mar 25-27
12	Pagano 15	Analysis of variance		Apr 01-03
13	Pagano 16	ANOVA follow-up tests		Apr 08
Final Exam	April 15	12-1pm		Apr 15

LAB SCHEDULE (Friday 1-3 or 3-5 pm)

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

Lab	Topic	Date
1	Intro to Data Management and R	Jan 10
2	Chaps 3-4 Freq Distributions, Averages & Variance	Jan 17
3	Chap 5 Standard Scores & Normal Distribution	Jan 24
	No Lab since Quiz 1 on Tuesday this week	Jan 31
4	Chaps 6-7 Correlation & Regression	Feb 07
5	Chaps 10-11 Hypothesis Testing and Power	Feb 14
	----------------- READING BREAK Feb 17-21 -----------------	
	No Lab since Quiz 2 on Tuesday this week	Feb 28
6	Chap 12 Sampling Distributions & z-test	Mar 07
7	Chap 13-14 t-tests	Mar 14
	No lab since Quiz 3 on Tuesday this week	Mar 21
8	Chap 15-16 ANOVA	Mar 28
9	tba if needed	Apr 04
	Final Lab Exam	tba

* Expect the end of year grades to have a mean of 80% and a standard deviation of 11%.

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