EPSE 482: Introduction to Statistics for Research in Education

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Section 075, January 2019

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Office: 304C

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Class Hours: Tuesday 4:30-7:30pm
Class Room: 1003

Course Description

This is an introductory course to the basic ideas behind data analysis and statistics. Whether you see yourself as someone who will "produce" or "consume" research (or both, depending on your goals) the ideas explored here will permeate almost every step of what you do. In this day and age where we are constantly bombarded by data it becomes more and more important to be able to understand what these data mean, where they come from, what they can tell us and, more importantly, what they **CANNOT** tell us. We will learn concepts about probability and statistical theory and how they inform our data analysis practice. Yes, we will use the language of mathematics to communicate throughout this course. Nevertheless, the ultimate goal is not to turn you into statisticians, but into clever critical thinkers who can properly assess your data analysis needs.

Recommended textbook

None. There are plenty of good online resources for material like this which I will be pointing out as we progress throughout the course. If you still feel you might need extra help or review, a good book I can recommend is:

- Gravetter, F. J., & Wallnau, L. B. (2013). *Essentials of statistics for the behavioural sciences.* (8th ed.). Belmont, CA: Thomson/Wadsworth.

Prerequisites/Corequisites

The only official prerequisite for this course is "proficiency in modern high school algebra".

Software

I am happy to let you use whichever software you feel most comfortable with. Bur for the purposes of this class, we will be using the freely-available platform **JAMOVI**. This is an R-based software package that operates very similarly to SPSS (i.e. point-and-click, drop-down menu interface) BUT it runs R code underneath. Please download it from here:

https://www.jamovi.org/

Evaluation

Weekly Quizzes: 25%

We will have a short quiz every week (except this one) to make sure we are all reviewing the class material. They shouldn't take more than say 15-20min (yes, that's how short and, hopefully, easy they will be!) and I'll take the top 10 quizzes out of the 13 that we will have.

Homework 50%

We will have 3 homework assignments. Each one contributes to 16.6% of your final grade.

Final exam 25 %

This will be a comprehensive, **TAKE HOME** exam. Very similar to what the homework assignments will be testing.

These are some **VERY TENTATIVE** dates of how I plan on structuring this. This may change depending on how the semester progresses.

Assignment	I give it on...	I need it back by...
Hwk #1	JAN 29	FEB 5
Hwk #2	FEB 26	MAR 5
Hwk #3	MAR 26	APR 2
Final	APR 2	APR 16

Tentative schedule

Week 1, Jan 8

Introduction to the course.

Week 2, Jan 15

Basic notions of probability.

Week 3, Jan 22

Random variables, what are they and how to summarize them.

Week 4, Jan 29

The normal distribution as a model to understand the world.

Week 5, Feb 5

The Central Limit Theorem and intro to Null Hypothesis Testing.

Week 6, Feb 12

Null Hypothesis Testing and the z-test.

Week 7, Feb 19: READING BREAK

Week 8, Feb 26

The t-test.

Week 9, Mar 5

The F-test of variance ratios and The One-Way Analysis of Variance.

Week 10, Mar 12

Correlation and Simple Linear Regression.

Week 11, Mar 19

Contingency tables, the Fisher exact test and the Chi-square test of association.

Week 12, Mar 26

Non-parametric statistics

Week 13, Apr 2

Power and re-cap of the course.

Important to keep in mind

Relevant dates

Last day to withdraw WITHOUT a W standing: January 14, 2019.

Last day to withdraw WITH a W standing: February 8, 2019 (course cannot be dropped after this date.)

Support

Me!
We also have a wonderful GAA (Graduate Academic Advisor), Dr. Ryan Ji, who provides quantitative support. You can email him at: ryanji@mail.ubc.ca

Academic Integrity

Make sure you are familiar with standard UBC policy. See the below website for more details:

http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,959

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