POTH204

Introduction to Statistics for PT/OT Students

Fall 2020
TF 14h35 – 15h55, Zoom
Meeting ID: 952 6804 7996

Instructor: Mohammad Darainy, PhD
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Office Hours: Thursdays 16h00 to 16h:30. At other times by appointment only

Overview

The statistical analysis of research data; frequency distributions; graphic representation; measures of central tendency and variability; elementary sampling theory and tests of significance.
The course can be divided to four parts: introduction, descriptive statistics, basic statistical theory and inferential statistics. The course begins with definitions of different types of variables and summation notation.
The second part of the course deals with frequency distributions, measures of central tendency and variation.
The next part of the course focuses on the probability, permutations and combinations, which relates to the act of rearranging members of a set. Probability distributions, sampling and sampling distribution will also be discussed.
The last portion of the course will focus on inferential statistics- a number of techniques that allow us to study samples and then make inferences about the population. It is also introduces the method of studying the relationship between two variables through correlation and regression analysis.

Learning Outcomes

1- Students will learn how to classify and visualize data sets.
2- Students will learn how Median, Mean and Variance can be used to represent the data.
3- They will learn how to apply statistics to test research hypothesis.
4- Students can identify proper statistical test and assess other's use of statistical technique.
5- They will lean how to measure correlation of two variables and how predict one variable from the other.

Evaluation

The final grade will be based on two assignments (30%), a final term project (40%) and a comprehensive final exam (30%).

Recommended textbook

Illowsky, B, Dean S, Introductory Statistics. (You can download it for free at https://cnx.org/contents/MBiUQmmY@23.9:2T34_25K@13/Introduction however donation is recommended)

Alternate textbook
1-Gravetter, F.J. and Wallnau, L.B. Essentials of Statistics for the Behavioral Sciences (2014). Wadsworth, 8th Edition. Note: This textbook does not cover chapter 6 of Ferguson & Takane.
2-Ferguson, G.A. & Takane, Y. Statistical Analysis in Psychology and Education (2005). New York: McGraw Hill. 6th edition.
(On course reserve at **Humanities and Social Sciences Library**)

Conferences

TA: TBA
W 11h35 – 12h25, Zoom

Exams

Final Exam:
TBA
Location: TBA

Secretary

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Course Outline

Class (tentative)	Topic	Chapter	Problems
Week1	Definitions Summation Notations	1:1-3	Ch1: 1-5,7-10,11,16,24-27,30,51,65,76,81,84
Week2	Frequency Distributions	2:1-2	Ch2: 8,9,10,11,12,13, 15,16,17,19,20
Week2	Central Tendency	2:3-6	Ch2: 23,26,29,32,40,41,42,43,44,45
Week3	Variation, z-Scores	2.7	Ch2: 57,60,66,69,70,73
Week4	Probability	3:1-4	Ch3: 12-17,38-53,59-65,90,92,96,101-108,113
Week4	Permutation, Combination	6(Ferguson)	
Week5	Binomial distribution	4:3	Ch4: 37-44, 83-86, 88, 96
Week6	Normal distribution	6	Ch6: 15-21,50-56,70-72,79,80
Week6	Sampling, sampling error and distribution (Central Limit Theorem)	7.1,7.3	Ch7: 1-6, 62-64,66-68,70-71,83,84,95
Week7	Confidence Interval	8.1-3	Ch8: 1-5,23-37,101,105,106,110,113,115-116
Week8	Review		
Week9	Statistical inference: mean	9,10	Ch9: 3-4,8-9,11-14,21-25,32,65-66,70,72,101-103 Ch10: 19-24,26-27,29-30,63-72,80,89,90,91,98,112,114,115,132
Week10	Statistical inference: Frequencies	11:1-3	Ch11: 9-11,13,26-30,32-37,39,72,73,76-77,86,89,92,98,100
Week11	Correlation & Regression	12	Ch12: 10-14, 17-24, 36-41, 61-63, 70-73, 77, 78
Week12	Correlation & Regression	12	
Week13	Review & Final Exam		

Note1:

You may not be able to get credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science Section of the Calendar.

In the event of extraordinary circumstances beyond the University's, Department's, and/or Instructor's control, the content and/or evaluation scheme in this course is subject to change.

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures.

In accord with McGill University's Charter of Students' Rights, students have the right to submit in English or in French any written work that is to be graded.