POTH204

Introduction to Statistics for PT/OT Students

Fall 2022
TR 13h05 – 14h25, MCMED 1034

Instructor: Mohammad Darainy, PhD
Course Email: statistics.psychology@mcgill.ca
Email: mohammad.darainy@mcgill.ca
Office: 2001 McGill College, Room 718
Office hours: 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 three assignments (30%), a midterm examination (25%) and a comprehensive final exam (45%). Please review note 1.

Recommended textbook

Illowsky, B, Dean S, Introductory Statistics. (You can download it for free at https://openstax.org/details/books/introductory-statistics 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
Email: statistics.psychology@mcgill.ca
M 08h35 – 09h25, MCMED 1034

Exams

Midterm Exam: Tuesday October 24, 2022
Location: TBA

Inquiries:

All course related inquiries should be sent to the course email account. Your TA will monitor and answer your question and if it's necessary escalate it to the instructor. **You only email course instructor if you will or already missed the midterm exam to provide documentation or you would like to arrange a one-to-one meeting.**

Tentative 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
Week4-5	Correlation & Regression	12	Ch12: 10-14, 17-24, 36-41, 61-63, 70-73, 77, 78
Week6	Probability	3:1-4	Ch3: 12-17,38-53,59-65,90,92,96,101-108,113
Week6	Permutation, Combination	6(Ferguson)	
Week7	Binomial distribution	4:3	Ch4: 37-44, 83-86, 88, 96
Week7	Normal distribution	6	Ch6: 15-21,50-56,70-72,79,80
Week8	Midterm (Tuesday October 24th)		
Week9	Sampling, sampling error and distribution (Central Limit Theorem)	7.1,7.3	Ch7: 1-6, 62-64,66-68,70-71,83,84,95
Week9	Confidence Interval	8.1-3	Ch8: 1-5,23-37,101,105,106,110,113,115-116
Week10-11	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
Week12	Statistical inference: Frequencies	11:1-3	Ch11: 9-11,13,26-30,32-37,39,72,73,76-77,86,89,92,98,100
Week13	Review & Final Exam		

Note 1:

Consequences of not completing assignments as requested:

Assignments must be submitted before the due date. Late submissions will incur a penalty of 5% of the total mark per day, including weekends, for up to three days following the due date. After this period, no further submissions will be accepted. If you require an extension, it is necessary to discuss the matter with the course instructor before the due date. Each extension request will be evaluated on a case-by-case basis. If you anticipate needing extra time due to a learning difficulty or ongoing illness, please request it in advance through the Student Accessibility & Achievement office.

Deferred/ Supplemental Exam:

If midterm is missed for valid and documented reasons* students should contact the course instructor within 48hrs. A make-up exam will be arranged with those who missed their midterm exam. However, for final examination, **don't contact course instructor** if you believe you are unable to write your final exam due to a serious health or other valid documented reasons, you may be eligible to apply for an exam deferral, depending on your faculty rules and regulations. **Please** submit your request in the deferred exam module on Minerva.

Students who received a D or F in the course, might be able to write a supplemental exam. A supplemental exam will be worth 80% of the final grade. Contact an advisor in your Student Affairs Office to discuss whether writing a supplemental exam is the right option for you. Applications can be made on Minerva as well.

*Valid reasons include, but are not limited to, sickness, family tragedy, court appointment, and participation in a formal event for which the scheduling is not at the discretion of the student, such as a concert of sports competition. Documentation, such as a doctor's note, a court summons, or a signed letter or direct email from the organizer of an official event must be provided within one week of the missed exam. In all instances, notify the instructor as soon as possible, and where practical, ahead of the to be missed exam.

Student Accessibility & Achievement (SAA):

As the instructor of this course, I endeavor to provide a learning environment that values and celebrates disability-identity. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and/or Student Accessibility & Achievement, 514-398-6009. SAA provides support and reasonable accommodation to students with documented disabilities. It is your responsibility to contact SAA as soon as possible if you think you need special accommodation.

Note2:

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.

Plagiarism/Academic Integrity:

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. Please refer to McGill's policy on Academic Integrity and Code of Conduct.
http://www.mcgill.ca/deanofstudents/plagiarism
http://www.mcgill.ca/students/srr/honest

Right to submit in English or French written work that is to be graded:

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.

Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue).