

PSYCH 710

STATISTICS AND RESEARCH DESIGN

2016

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September

Class: Monday 11:30 - 2:30pm PC-154

Computer Laboratory: Thursday 10:30-12:30pm or 12:30-2:30pm* PC-154

*students will be assigned to a section at the first class.

Information about the course, including lecture notes, will be available on McMaster's Avenue to Learn System. The course will appear as PSYCH 710: STATISTICS AND RESEARCH DESIGN under the "My Courses" section.

Objective:

This course covers statistical techniques that are commonly used in behavioural research, especially Psychology, and therefore emphasizes the use of linear models to analyze data that have been collected using balanced experimental designs. The course material is designed with the assumption that students have completed an undergraduate statistics course. A review of basic statistical concepts is provided in the Basic Statistics tutorial on the CD that comes with the course textbook.

Statistical Laboratories:

The purpose of the labs is to provide students with opportunities to work on statistical problems related to the lectures. At the beginning of each lab, students will be provided with materials that describe the lab exercises.

Students are expected to complete all lab exercises, but they will not be graded. Answers to the exercises will be posted on the course website.

Required Textbook:

- Maxwell, S. E., & Delaney, H. D. (2004). *Designing Experiments and Analyzing Data: A model comparison perspective* (2nd ed.). Mahwah, N.J.: Lawrence Erlbaum Associates. The companion website for this book is at www.designingexperiments.com.

Software:

Laboratory exercises will use the statistical computing environment, R. No familiarity with R is assumed. Versions of R for Windows, OS X, and Linux can be obtained at <http://cran.r-project.org/>. Students are encouraged to install R on their own computers.

The following documents (which can be obtained at <http://cran.r-project.org/other-docs.html>) are recommended for people who are unfamiliar with R.

- Baron, J. & Li, Y. (2004). Notes on the use of R for psychology experiments and questionnaires.
- Burns, P. (2003). A guide for the unwilling S User.
- Paradis, E. (2005). R for beginners.

Finally, several website contain valuable information about how to use R. Here are a few that I've found useful:

- Quick-R (<http://www.statmethods.net/index.html>)
- R-bloggers (<http://www.r-bloggers.com>)
- Jeromy Anglim's Blog: Psychology & Statistics (<http://jeromyanglim.blogspot.ca/search/label/R>)

Grading: Grades will be based on three in-class exams administered in the statistics laboratory. Each exam constitutes one-third of the final grade. Students will have access to R during the exams.

Missed Exams: All students must complete all three exams. If you miss an exam, it is your responsibility to contact the instructor or a TA as soon as possible and explain why you missed the exam. If you have a valid excuse, then you will be allowed to take a make-up exam at another time (usually one week following the original exam).

Academic Integrity:

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>

The following illustrates only three forms of academic dishonesty:

- 1) Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
- 2) Improper collaboration in group work.
- 3) Copying or using unauthorized aids in tests and examinations.

Accommodations for disabled students:

Students with disabilities are encouraged to approach the Centre for Student Development for special accommodations to facilitate learning: <http://csd.mcmaster.ca/sswd>