Faculty of Health
Department of Psychology
HH/PSYC 3031 3.0 Section M
INTERMEDIATE STATISTICS LABORATORY
Winter 2017

Instructor and T.A. Information
Instructor: Christopher Green
Office: BSB 286
Office Phone: York ext. 66164
Office Hours: By appointment
Email: christo@yorku.ca
E-mail is always your best bet. I will try to respond within 24 hours (weekends may be delayed).

T.A.	Ian Davidson
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Office Hours	TBA

Course Prerequisite(s): Course prerequisites are strictly enforced.
- HH/PSYC 1010 6.00 (Introduction to Psychology), with a minimum grade of C.
- HH/PSYC 2020 6.00 (Statistical Methods I and II) or substitute

Course website: Moodle

Course Description

The main focus of this course is to channel the statistical knowledge that you gained in PSYC2020 (or PSYCH2021/2022) into a laboratory format in which you will learn how to execute those procedures on a computer using the software package and programming language called R. Along the way, we will deepen and extend your knowledge of statistical analysis as it is practiced in psychological research today. First, after reviewing some basic descriptive statitics, we will explore methods for the detailed visualization (graphing) of data. This was traditionally a laborious process, but is now made much easier by computers. Second, we will examine the differing definitions of probability that have been offered (classical, frequentist, Bayesian), and we will explore probabilistic behaviour empirically. Third, we will examine two inferential procedures with which you are already familiar -- z and t. Here we will pay special attention to the pervasive p-value. What does it actually mean? What do people often mistake it for meaning? What additional statistical "supports" can be brought in to make our analyses more informative (e.g., confidence intervals, effect sizes, power). What are p-hacking, the file drawer problem, the replication "crisis," etc. and how can we successfully address them? Fourth, we will look at a bivariate correlation and regression -- r, of course, but also some other useful correlation coefficients. Finally, we wll look at various forms of ANOVA: "one-way," factorial, repeated measures, and mixed designs. We will bring to bear, here, many of the issues we explored earlier in the course to improve our understanding.
Most weeks, class will start with a lecture of about one-and-a-half hours in length. Then we will take

a short break and reconvene in a computer lab for an hour-long session led by the Teaching Assistant. The focus of the labs will be teaching you the popular statistical language R, which is how we will carry out our statistical procedures in this course. It is expected that students will attend all lectures and labs.

Learning Outcomes

Upon completion of this course, students should be able to:

1. Analyse psychological data using advanced univariate statistics.
2. Use data analytic software for analysis of psychological data.

Specific Learning Objectives

The objective of the course is that students learn to competently use the computer statistical package, R. Students will also deepen and broaden their understanding of a range univariate statistical procedures that are commonly used in psychological research (detailed in the course description above). By the end of the course students should be able to identify and execute in R the statistical procedures that are most appropriate for different data types and formats. Students should also be able to knowledgeably discuss the strengths and weakness of these statistical procedures, as well as a number of broader statistical issues that currently occupy the discipline (detailed in course description above).

Required Text

- Howell, David C. (2013). Statistical methods for psychology (8th ed.). Wadsworth. (available at the York bookstore)

Recommended Text

- Navarro, Daniel. (2016). Learning Statistics with R.
  (free online at http://health.adelaide.edu.au/psychology/ccs/teaching/lsr/)
- Additional recommended weekly readings/viewings are given in the Moodle site for the course.

Course Requirements and Assessment

There will be two assignments with problems that require both thoughtful consideration of statistical issues as well as relevant competencies in R. There will also be a formal final exam, composed of short answer questions (possibly including some computation) to be written in a room without computer access. Calculators will be allowed, but they must not be incorporated into mobile telephones (or any other telecommunications device).

Assessment	Date of Evaluation (if known)	Weighting
Assignment #1	Due Feb 14	30%
Assignment #2	Due Mar 21	30%
Final Exam	TBD	40%
Total		100%

Grading as per Senate Policy

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ - 7, C+ = 5, etc.). Assignments and tests* will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

(For a full description of York grading system see the York University Undergraduate Calendar - calendars.students.yorku.ca/2016-2017/academic-and-financial-information/academic-services/grades-and-grading-schemes

Late Work/Missed Tests or Exams

No late assignments will be accepted unless accompanied by a documented acceptable excuse, such as illness, compassionate grounds, etc. **This must be confirmed by supporting documentation** (Attending Physician Statement which can be found at: http://registrar.yorku.ca/pdf/attending-physicians-statement.pdf). Further extensions or accommodation will require students to submit a formal petition to the Faculty. The same rules apply to missing the final examination: no makeup examination will be set without an acceptable documented excuse. In any case, please notify the instructor as early as possible (in any case, no later than 48 hours after the assignment due date or the examination time).

Add/Drop Deadlines

For a list of all important dates please refer to: Important Dates

Important dates	Winter (W)
Last date to add a course **without** permission of instructor (also see Financial Deadlines)	Jan. 18
Last date to add a course **with permission** of instructor (also see Financial Deadlines)	Feb. 1
Last date to drop a course without receiving a grade (also see Financial Deadlines)	March 10
Course Withdrawal Period (withdraw from a course and receive a "W" on the transcript)	March 11 - Apr. 5

Information on Plagiarism Detection

Plagiarism may result in a failure for the course.

Electronic Device Policy

Electronic devices are permitted in class so long as they are completely silent throughout. No electronic devices will be permitted in the final examination (see below).

Attendance Policy

Students are expected to attend all lectures and labs. They are responsible for any material lecture of lab material missed. Neither the instructor nor the TA will re-present privately material that was missed.

Academic Integrity for Students

York university takes academic integrity very seriously, please visit an overview of Academic Integrity at York University from the Office of the Vice-President Academic.

The following links will assist you in gaining a better understanding of academic integrity and point you to resources at York that can help you improve your writing and research skills:

- Information about the Senate Policy on Academic Honesty
- Online Tutorial on Academic Integrity
- Information for Students on Text-Matching Software: Turnitin.com
- Beware! Says who? A pamphlet on how to avoid plagiarism
- Resources for students to help improve their writing and research skill

Test Banks:

The offering for sale of, buying of, and attempting to sell or buy test banks (banks of test questions and/or answers), or any course specific test questions/answers is not permitted in the Faculty of Health. Any student found to be doing this may be considered to have breached the Senate Policy on Academic Honesty. In particular, buying and attempting to sell banks of test questions and/or answers may be considered as "Cheating in an attempt to gain an improper advantage in an academic evaluation" (article 2.1.1 from the Senate Policy) and/or "encouraging, enabling or causing others" (article 2.1.10 from the Senate Policy) to cheat.

Electronic Devices During a Test/Examination:

Electronic mobile devices of any kind are not allowed during a test or examination. Students are required to turn off and secure any electronic mobile device in their bag which is to be placed under the chair while a test/exam is in progress. Any student observed with an electronic devise during a test/exam may be reported to the Undergraduate Office for a potential breach of Academic Honesty.

Academic Accommodation for Students with Disabilities:

While all individuals are expected to satisfy the requirements of their program of study and to aspire to do so at a level of excellence, the university recognizes that persons with disabilities may require reasonable accommodation to enable them to do so. The York University Accessibility Hub is your online stop for accessibility on campus. The Accessibility Hub provides tools, assistance and resources. Policy Statement

Policy: York University shall make reasonable and appropriate accommodations and adaptations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs.

The nature and extent of accommodations shall be consistent with and supportive of the integrity of the curriculum and of the academic standards of programs or courses.
Provided that students have given sufficient notice about their accommodation needs, instructors shall take reasonable steps to accommodate these needs in a manner consistent with the guidelines established hereunder.

For Further Information please refer to: [York university academic accommodation for students with disabilities policy](#)

Course Materials Copyright Information:

These course materials are designed for use as part of the PSYC 3031 3.0M course at York University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as book chapters, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law.

Copying this material for distribution (e.g. uploading material to a commercial third-party website) may lead to a violation of Copyright law. [Intellectual Property Rights Statement](#)

Course Schedule:

For the weekly lecture schedule, consult the course Moodle site.