PSYCHOLOGY 3031 3.0 M: INTERMEDIATE STATISTICS LABORATORY
YORK UNIVERSITY – FACULTY OF HEALTH
WINTER 2015 – TUESDAYS 14:30 – 17:30
ACCOLADE WEST 203

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BSB 281

COURSE WEBSITE: www.matthewsigal.com/psyc3031

Course Description: Intermediate Statistics Laboratory is an applied course in which students will learn to conduct and interpret statistical analyses commonly employed in psychological research. In this course we will use the *R* statistical computing programming language (www.R-project.org).

The principal goal of the course is for students to become familiar with statistical software, learn to conduct statistical analyses, and interpret the results appropriately. These are essential skills for research in Psychology. By the end of the course, students should be able to:
*   Handle, screen, and clean datasets
*   Summarize (graphically and numerically) and observe patterns in data
*   Conduct a range of statistical techniques commonly used in psychological research and be able to properly interpret the results
*   Write reports summarizing statistical analyses conducted

This course assumes students have taken an introduction to statistics course and are familiar with basic statistical tests (e.g. t-tests, one-way ANOVA, correlation, and regression). Essential formulas will be reviewed briefly during the course of each lecture, but students are encouraged to review their introductory statistics materials for further explanations.

Course Format: Each meeting will begin with a lecture and software demonstration introducing and reviewing key statistical concepts and how they are applied using *R*. The second portion of the meeting will consist of a hands-on laboratory where you will work individually on problems that require application of these concepts to realistic datasets.

Course prerequisite or co-requisite: PSYC 1010 6.00 or AK/PSYC 2410 6.00, with a minimum grade of C, and PSYC 2020 6.00 or substitute.

Course Textbook: Navarro, D. (2014). *Learning Statistics with R*. Retrieved from http://health.adelaide.edu.au/psychology/ccs/teaching/lsr/.

Software: We will be using R, which is free and works on Windows, OS X, and Linux. You will want to download and install RStudio, which is freely available at http://www.rstudio.com/products/rstudio/

We highly encourage bringing a personal laptop to class, if you are able!

Evaluation: 25% Mid-term
40% Final Exam
25% Assignments (x3, 5%, 10%, and 10%)
10% Participation

Midterm and Final Exam: Both exams will take place in the computer lab. Exams will involve some short answer and multiple-choice questions, but the primary focus will be conducting statistical analyses of supplied data and providing thoughtful interpretations of the results.

Assignments: Three assignments will be provided with accompanying data sets. You may discuss the assignments with fellow students but write ups must be completed and submitted individually. Any evidence of copying will be considered a breach of academic honesty and will be dealt with accordingly (see www.cse.yorku.ca/admin/coscOnAcadHonesty.html). Assignments are to be submitted via email to both the course director and TA before 11:59pm the day they are due. Late assignments will **not** be accepted (see "Policy on Missed Assignments" below).

Participation: This course provides training in the application of statistical methods through software demonstration and hands-on laboratory sessions. Students are expected to attend the lab sessions, ask questions, assist one another during exercise time, and participate in class by asking thoughtful questions.

Grading: The final grading scheme for the course conforms to the 9-point system used in undergraduate programs at York University (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.

Tentative Schedule and Important Dates:

Month	Date	Topic
January	6th	Background (Chapters 1, 2), Introduction to R (Chapters 3, 4)
	13th	Descriptive Statistics (Chapter 5)
	20th	Visualizing Data (Chapter 6), **ASSIGNMENT 1 DUE (5%)**
	27th	More Advanced R (Chapters 7, and 8)
February	3rd	Statistical Theory Review (Chapters 9, 10, and 11), **ASSIGNMENT 2 DUE (10%)**
	10th	Categorical Data Analysis (Chapter 12)
	17th	**READING WEEK**
	24th	**MIDTERM (25%)**
March	3rd	Comparing Two Means (Chapter 13)
	6th	**DROP DATE FOR WINTER COURSES**
	10th	One-Way ANOVA (Chapter 14)
	17th	Linear Regression (Chapter 15)
	24th	Factorial ANOVA (Chapter 16)
	31st	Advanced Topics Useful for Psychology (Chapter 17), Review **ASSIGNMENT 3 DUE (10%)**
April	8th-24th	**FINAL EXAM (40%) – DATE TO BE ANNOUNCED**

Supplementary Texts (<u>NOT</u> necessary for the course but good resources):
Fox, J., & Weisberg, H. S. (2010). *An R Companion to Applied Regression* (2nd Ed.). Sage.
Howell, D. C. (2012). *Statistical Methods for Psychology* (8th Ed.). Wadsworth.
Field, A. P., Miles, J., & Field, Z. C. (2012). *Discovering statistics using R*. Sage.
Ramsay, F., & Schafer, D. (2012). *The Statistical Sleuth* (3rd Ed.). Thomson Brooks/Cole.
Wickham, H. (2015). *Advanced R*. Chapman & Hall.
Matloff, N. (2011). *The Art of R Programming*. No Starch Press.

POLICY ON MISSED EXAMS

1. Students are expected to write each test on the dates specified. **If you miss a test for no documented reason(s), you will receive a grade of zero.**

2. If you have a legitimate reason (e.g., death in the family, severe illness, etc.) for being excused from a test/exam, and <u>have documentation</u> to verify your absence, you may take a make-up test/exam in lieu of the missed test/exam. Please note that we are extremely strict about the conditions that will allow you to write a make-up examination (missing an exam for a vacation is not an acceptable reason!).

3. **Within 48 hours of the missed exam**, **students must contact the course instructor and the TA via email, and documentation must be provided within one week.** In this email, please (a) outline the reason for your absence, and (b) confirm that you have medical or other relevant documentation to support this reason. Be sure to note your course section and your full name and student number in the subject of your email.

4. There will be *one* set date for the make-up test/exam. For the first exam, students who are unable to attend at the make-up time due to further or continued **documented** illness or significant personal hardship may be excused from the test, and their final course grade will be pro-rated to reflect this. For the final examination, relevant university policies will be followed.

5. If you miss a test, regardless of your reason, you have waived the right to have a specific percentage of graded feedback available to you prior to the drop date.

6. Note that deferred final exams are held on a single common date determined by the Department of Psychology. No individualized testing is available unless arranged formally through one of the offices at the University (e.g., Counseling and Disability Services).

7. Once you have contacted the course instructor and your TA, you will need to submit an attending physician's statement (http://www.registrar.yorku.ca/exams/deferred/). This should be brought to your TA's mailbox or faxed to (416) 736-5814, addressed to Matthew Sigal. **It is your responsibility to find out when the make up exam is from your TA**!

POLICY ON MISSED ASSIGNMENTS

1. Students are expected to submit each test prior to 11:59pm on the day they are due. **Late assignments will not be accepted. If you miss an assignment for no documented reason(s), you will receive a grade of zero.**

2. **Within 48 hours of a missed assignment**, **students must contact the course instructor and the TA via email and documentation must be provided within one week**. In this email, please (a) outline the reason for your absence, and (b) confirm that you have medical or other relevant documentation to support this reason. Be sure to note your course section and your full name and student number in the subject of your email.

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Academic Integrity: All students are expected to abide by the university's policies on academic integrity. The relevant documents can be found here: http://www.yorku.ca/academicintegrity/students/index.htm. Although not limited to the following four, any student found (1) looking at another student's examination; (2) communicating with another student during the examination; (3) in possession of unauthorized documents (e.g., notes) in the examination; or, (4) receiving unauthorized communications from outside the examination room will be considered to be in violation of one or more of the university's academic integrity policies and appropriate disciplinary steps will be taken.

Disability Accommodation. Appropriate accommodation will be made in accordance with the policies of the university (http://www.yorku.ca/secretariat/policies/document.php?document=68). Students should consult with the university's accommodations office for relevant documentation.

Religious Accommodation. Appropriate accommodation will be made in accordance with the policies of the university. Please see the instructor at your earliest opportunity if you discover issues relating to your religious practices and the expectations of the course.

Other Important Information:

Code of Student Rights and Responsibilities
http://www.yorku.ca/secretariat/policies/document.php?document=202

York University Secretariat:
http://www.yorku.ca/secretariat/index.html

Policy on accommodation for students with disabilities:
http://www.yorku.ca/secretariat/policies/document.php?document=68

Policy on plagiarism and academic honesty:
http://www.yorku.ca/academicintegrity/students/index.htm
http://www.yorku.ca/univsec/policies/document.php?document=69