

Faculty of Health
Department of Psychology
PSYC 3031 3.0 Section A: INTERMEDIATE STATISTICS I
Wednesday / 2:30 PM – 5:30 PM / ACW204
Fall 2022

This course will only be delivered in-person. Recordings will be made available online afterwards. However, this is not an invitation to only watch the recordings. By coming to class, you will benefit from receiving real-time troubleshooting from your instructor, TA, or peers in a manner that is difficult to replicate when you are a novice programmer.

Instructor and T.A. Information

Instructor: Ronda Lo

Office Hours: Wednesday 10:00 AM – 12:00 PM

Email: rondalo@yorku.ca

T.A.	Eric Tu
Email	erictu@yorku.ca
Office Hours	By appointment

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
- HH/PSYC 2030 3.00 (Introduction to Research Methods)
- Completed at least 54 earned credits

Course Credit Exclusions

Please refer to [York Courses Website](#) for a listing of any course credit exclusions.

Course website: [eClass](#)

All course materials will be available on the course eClass site. The site will be your central access point for course materials.

Technical Requirements:

This course will be held in person, and every week the instructor will teach students how to program in R. It is therefore **highly recommended** that students bring a laptop to class so that they can run through the pre-written code and complete exercises in-class. Class time is used explicitly for practicing R. Not coming to class will only making learning R more difficult. A personal computer or laptop will also be necessary to complete all assessments because the course is taught under the assumption that you may need to access files stored in your personal computer. Your computer or laptop will require a Windows, Mac, or Linux operating system to install two programs (all free!):

1. R: R is the programming language that we will be using. You will need to install this language so that we can use it in the next software below (RStudio)
 - <https://www.r-project.org/>
 - Click on **CRAN** under Downloads
 - Scroll down to the Canada section
 - Select any link under the Canadian section
 - Download and install R for whichever operating system you have
2. RStudio: This is the program we will use to program R in. It provides a graphic user interface to check your code, colour highlighting for your code, file explorer, and plot display. This is the universal standard program for R.
 - <https://www.rstudio.com/products/rstudio/>
 - Click on **RStudio Desktop** under “There are two versions of RStudio:”
 - Click on **Download RStudio Desktop**
 - Click on **Download** under the RStudio Desktop that says Free
 - Go to **All Installers** section and select the download link for whichever operating system you have

Course Description

This course serves as an in-depth introduction to R programming, data analysis, and advanced statistical concepts. Students will be provided the opportunity to apply and extend their skills by cleaning, analyzing, and writing up reports about real data. Programming and analysis skills will be practiced during class time, and real-time feedback by the instructor and TA will be given. This course should prepare students with a solid foundation of R programming, data skills, and statistics to conduct data analysis for independent research projects and thesis research, or for analytical projects outside of university.

Program 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

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

1. Use R to effectively clean, organize, and visualize data
2. Identify appropriate statistical analyses for given research questions
3. Perform appropriate diagnostic steps prior to data analysis
4. Accurately interpret and write up analytical findings in APA style

Required Text

There is no required text, however there will be some required readings throughout the term. The readings or links to readings will be posted on eClass at least one week prior to the relevant class meeting.

Course Requirements and Assessment:

Assessment	Date of Evaluation (if known)	Weighting
Questionnaire 1 and 2 Completion	September 9 and October 26	2%
Reflection Paper 1 and 2	September 14 and November 30	2%
Item Generation	September 28	3%
Item Feedback	October 5	2.5%
Item Submission	October 19	0.5%
Data Report Part 1 (Visualization & Description)	October 19	20%
Data Report Part 2 (Diagnostics & Analysis)	November 9	30%
Final Manuscript	December 5	40%
Total		100%

Description of Assignments:

Questionnaires: To make data analysis more interesting, the class will generate their own data by answering 2 questionnaires throughout the term. Questionnaire 1 will be created by the Instructor, and Questionnaire 2 will be generated by students themselves by providing items that they create or find from previous research. Each student must complete the questionnaires, otherwise we will not have enough data to use! 1% will be awarded per questionnaire completed. **Late submissions will not be accepted.**

Reflection Papers: All reflection papers will be 1 page max. Reflection Paper 1 is an opportunity to express to your instructor your past with statistics and your personal learning goals for PSYC 3031. Reflection Paper 2 will be used to talk about whether you have met some or all of your goals, and whether your experience with statistics has changed since taking the course. **Late submissions will not be accepted.**

Item Generation: Students will be asked to generate 3 items for Questionnaire 2. These items should be something that students are interested in learning about their peers, and potentially use for their data report or final project. At least 1 item needs to be from a validated measure you are interested in using, and at least 1 item needs to be something you make up. Each item requires a short description of what format the item will be in (e.g., multiple choice, open textbox answer), what it intends to measure, and why it would be interesting to collect data on this. All students need to post their Item Generation assignment in a designated eClass forum thread. 1% is earned for each appropriate item. **Posting late will automatically forfeit 3%.**

Item Feedback: Students will be asked to comment on 5 of their peers' posts and provide feedback for them. 0.5% is earned for each post. **Late submissions will not be accepted.**

Item Submission: Students will address their peer’s feedback, make any last changes to their items, and submit the final list of items. **Late submissions will not be accepted.**

Data Report: Students will write a data report which allows the opportunity to apply the skills learned in class using the data from our questionnaires. The data report will effectively be a short APA-style manuscript, with a short introduction, methods, results, and short discussion section. Data from Questionnaire 1 will be used. The data report will be due in 2 parts:

- Part 1 requires applying basic data cleaning skills to describe data for your proposed research question. This involves removing bad responses, dealing with missing data, re-coding values, computing measures of central tendency (e.g., means) and visualizing data. Part of the evaluation will require adhering to APA style.
- Part 2 will follow up on Part 1 by including actual analyses for your research question. This includes doing conducting diagnostic tests, analyses, post-hoc tests if needed, and visualization of the results. Part 2 should also include the section from Part 1 (revised as needed from TA feedback). Part of the evaluation will require adhering to APA style.

Final Manuscript: This project will require that you combine your skills from Data Report parts 1 and 2 together. Students will design a new research question based off data from Questionnaire 2, and write up a brief introduction, hypothesis, methods, results, and brief discussion section. Part of the evaluation will require adhering to APA style.

Class Format and Attendance Policy

This course is intended to be an in-person 3-hour class per week. Each class will provide an initial lecture, followed by an extensive R workshop. Students are expected to also execute code on their own computer and complete any short exercises in class. Any code errors will be followed up with by the Instructor or TA. Following each class, a recording of the R workshop will be provided for students for the purpose of reviewing concepts learned in class, or for students to catch up if they miss in-person class.

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 89, B+ = 75 to 79, etc.)

For a full description of York grading system see the York University Undergraduate Calendar – [Grading Scheme for 2022-23](#)

Missed Tests/Midterm Exams/Late Assignment

No late submissions are allowed for Questionnaires, Reflection Papers, Item Generation and Feedback assignments. There are no exceptions to this. These assignments are relatively low-effort, so please take care to complete these assignments well ahead of the due date.

For the Data Reports and Final Manuscript: All students will be given a 2-day, no strings attached, extension to submit these assignments. There is no need to email the instructor or TA to use these extra 2 days. After 2 days, you may submit late assignments up to 3 days after the 2-day extension. Each day outside of the 2-day extension will add a 5% penalty to your final grade. **After a total of 5 days after the assignment is due, no late submissions will be accepted, and you will be given a 0% for that assignment.**

Add/Drop Deadlines

For a list of all important dates please refer to: [Fall/Winter 2022-23 Important Dates](#)

	Fall (Term F)	Year (Term Y)	Winter (Term W)
Last date to add a course without permission of instructor (also see Financial Deadlines)	Sept. 20	Sept. 20	Jan. 22
Last date to add a course with permission of instructor (also see Financial Deadlines)	Oct. 4	Oct. 25	Feb. 6
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 11	Feb. 10	Mar. 17
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov. 12 - Dec. 7	Feb. 11 - April 11	March 18 - April 11

Add and Drop Deadline Information

There are deadlines for adding and dropping courses, both academic and financial. Since, for the most part, the dates are **different**, be sure to read the information carefully so that you understand the differences between the sessional dates below and the [Refund Tables](#).

You are strongly advised to pay close attention to the "Last date to enrol without permission of course instructor" deadlines. These deadlines represent the last date students have unrestricted access to the registration and enrolment system.

After that date, you must contact the professor/department offering the course to arrange permission.

You can drop courses using the registration and enrolment system up until the last date to drop a course without receiving a grade (drop deadline).

You may [withdraw from a course](#) using the registration and enrolment system after the drop deadline until the last day of class for the term associated with the course. When you withdraw from a course, the course remains on your transcript without a grade and is notated as 'W'. The withdrawal will not affect your grade point average or count towards the credits required for your degree.

Information on Plagiarism Detection

Copying snippets of code from internet sources and the instructors code, or sharing peers' code, is questions, (3) create different ways of cleaning and analyzing data, and (4) independently write acceptable. Programming, especially in the beginning, tends to be majority

copy-and-paste. However, you are expected to (1) comment on your code to demonstrate your understanding, (2) design different research Data Reports/Final Manuscript. This means it would be a pretty bad idea to copy huge sections of someone's report.

Electronic Device Policy

This course will be delivered in-person, and electronic devices (e.g., tablets, laptops) are permitted during class time for course-related purposes.

Academic Integrity for Students

York University takes academic integrity very seriously; please familiarize yourself with [Information about the Senate Policy on Academic Honesty](#).

It is recommended that you review Academic Integrity by completing the [Academic Integrity Tutorial](#) and [Academic Honesty Quiz](#)

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.

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 university encourages students with disabilities to register with Student Accessibility Services (SAS) to discuss their accommodation needs as early as possible in the term to establish the recommended academic accommodations that will be communicated to Course Directors as necessary. Please let me know as early as possible in the term if you anticipate requiring academic accommodation so that we can discuss how to consider your accommodation needs within the context of this course.

<https://accessibility.students.yorku.ca/>

Excerpt from Senate Policy on Academic Accommodation for Students with Disabilities

1. Pursuant to its commitment to sustaining an inclusive, equitable community in which all members are treated with respect and dignity, and consistent with applicable accessibility legislation, York University shall make reasonable and appropriate accommodations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs. This policy aims to eliminate systemic barriers to participation in academic activities by students with disabilities.

All students are expected to satisfy the essential learning outcomes of courses. Accommodations shall be consistent with, support and preserve the academic integrity of the curriculum and the academic standards of courses and programs. 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 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

Date	Topic	Assignments
Week 1 (Sept 7)	Introduction to R + Data Types	Questionnaire 1 due by Sept 9
Week 2 (Sept 14)	Wrangling Data 1	Reflection Paper 1 due by Sept 14
Week 3 (Sept 21)	Wrangling Data 2	
Week 4 (Sept 28)	Cleaning Data	Item Generation due by Sept 28
Week 5 (Oct 5)	Describing Data	Item Feedback due by Oct 5
	<i>Reading Week (Oct 8 -14)</i>	No Class!
Week 6 (Oct 19)	T-tests & Correlations	Data Report 1 due by Oct 19 Final Item Submission due by Oct 19
Week 7 (Oct 26)	Regression 1	Questionnaire 2 due by Oct 26
Week 8 (Nov 2)	Regression 2	
Week 9 (Nov 9)	Anova 1	Data report part 2 due by Nov 9
Week 10 (Nov 16)	Anova 2	
Week 11 (Nov 23)	Anova 3	
Week 12 (Nov 30)	Wrap-up (Extra day in case)	Final Project due by Dec 5