PSY305: Treatment of Psychological Data
Winter 2023

Course Information
- *Lectures*: Thursdays, 10 AM – 1 PM
- *Location*: HA403
- *Instructor*: Jun Young Park, PhD
- *Instructor's email*: junjy.park@utoronto.ca
  If an email to the instructor is *necessary* (see below), make sure
    - the title of your email is PSY305-[student number]-[topic].
    - you include all TAs as recipients in the email (use the cc function).
  I won't be replying to emails that do not meet this format.
- *Instructor's office hours*:
    - Tuesdays 9-10 AM.
    - You must declare your intent to attend office hours before Mondays at 11:59 PM. Please check Quercus for the link.
    - Office hours will be held online. Please check Quercus for the Zoom link.
- *Teaching assistants and emails*
  General questions about course materials should be sent to TAs.
    - Johnny Dubois, PhD student (m.dubois@mail.utoronto.ca)
    - Kirk Geier, PhD student (kgeier@research.baycrest.org)

Getting Help with the Course
- The **best way** to ask questions about the course materials and administrative issues is to ask directly to me during (or after) the lecture. I am open to answering **any** questions during the lecture.
- You may also use office hours to ask questions about the course materials.
- Quercus discussion forum will be used to ask questions on course materials and administrative issues, but it may take some time to get a response.
- You may email me on personal issues, although it may take some time to get a response.

Course Description
Up through now, you have learned the basics of how we use statistics to derive meaning from scientific data. This class will translate that knowledge into action. The goal of this class is twofold, depending on what you want to do when you graduate. This class will either: (a) Teach you how to be a graduate student in psychology; (b) Teach you how to be an active, data-driven citizen. You will learn how to manage data in a way that is well-reasoned and conducive to statistical analysis. You will make decisions on how best to analyze data — a problem that rarely has only one correct answer — and you will learn how to justify your decisions. You will embrace the process of reporting statistical results in a clear and reproducible way. You will also learn how to simulate data to help anticipate your analyses before you collect your data and estimate statistical power. Writing will also be a big part of this class, as you will learn how to report statistical results to both scientific and popular audiences. Altogether, you should emerge from this class being able to follow the process of data analysis from a raw dataset to a publishable final report, being able to readily share this process with others in a clear, open, and reproducible way.

Topics
- Asking Questions of Science
- Understanding Statistical Analysis
- Simulating Data for Power and Planning
- Reproducible Research
- Statistical Inference
- Transparent Data Preparation & Preregistration
- Open Science
- Science Writing
- Scientific Publication
- Research Life: Graduate Student Panel

Evaluations
- *Assignment (30%)*: There will be 9 (tentative) assignments that ask you to internalize course materials and apply them to research problems. These will be released on the weekend after class and due Wednesday at 11:59 PM. These are to be completed on your own. Assignment types include (i) short response (ii) multiple choice (iii) R programming.
- *Term test (30%)*: It will evaluate your understanding of scientific research using data. It includes (i) short response (ii) T/F (iii) multiple choice (iv) case studies but not R programming.
- *Science writing project (40%)*: You must first think up a research question that interests you, obtain primary or secondary data to test this question, and then write an APA-style research report. This requires you to identify a research question, choose the correct analysis plan, and complete that analysis with real data. The dataset that you use can be either: (a) A research dataset you are collecting or have collected (e.g., through a thesis, independent study, or other lab volunteering), or (b) A public dataset that you find through the Internet or other data-sharing sources.
  - Preregistration materials (15%): you will complete the van't Veer and Giner-Sorolla (2016) preregistration template on the Open Science Framework (OSF). Attached to your preregistration materials, you must have: (a) Study materials; (b) Either a simulated dataset or your final dataset plus a data dictionary that documents all variables; (c) An analysis script in either R or SPSS that can be run on the attached dataset.
  - APA-style manuscript & Final materials (25%): The APA-style report will include three of the major sections of an APA-style paper (i.e., Methods, Results, and Discussion, including corresponding tables and/or figures to sufficiently illustrate your results) and also three minor sections (i.e., Title Page, Abstract, and References). The abstract is where you will state your research question. You will write it all up as you would for a journal article, strictly adhering to APA Style. You will additionally submit the final syntax and data files that reproduce all numbers in your manuscript and all supporting documentation.
- *Participation credits (up to 3%)*: Extra credits will be given based on participation in class. Students with participation counts >4 will get an extra 3%, and counts >2 will get an extra 1%. The "participation count" is defined by the number of classes you participated in discussion points made by the instructor or asked insightful questions in class. Clarification questions do not count toward the count.

Course Resources
Lecture slides will be uploaded to Quercus before the lecture. I acknowledge that some parts of the slides are adapted from the course contents prepared by Dr. Elizabeth Page-Gould, which is available at https://osf.io/z6mp4/.

Important Dates (tentative)
- February 23: No class (Winter Reading Week)
- March 9: Due date for submitting preregistration materials
- March 23: Term test
- April 10: Due date for submitting the final manuscript

Software
We will use **R** throughout this course, a statistical software that is publicly available for free at https://mirror.csclub.uwaterloo.ca/CRAN/. It is also highly recommended to install RStudio (https://posit.co/downloads/) for an interactive programming environment. This course does not require any prior knowledge of R, and some basics will be covered in class. Note that the classroom does not have a computer lab; you'll be asked to bring your laptop if needed.

Sharing Course Materials
Sharing course materials require the instructor's permission.

Lecture Recordings
The lectures will not be recorded nor distributed unless advised by the university.

Accommodations
If you have a disability or health consideration that may require accommodations, please feel free to approach me or Accessibility Services at or https://studentlife.utoronto.ca/as or (416) 978-8060.

Academic Integrity
Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:
- Using someone else's ideas or words without appropriate acknowledgement
- Submitting your own work in more than one course without the permission of the instructor
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment
- Misrepresenting your identity on exams

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If students have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, they are expected to seek out additional information on academic integrity from their instructors or from other institutional resources.

Missing the term test

Students are required to take the term exam on the scheduled date to qualify for grades. In case of (medical or family-related) emergencies, students must declare the absence and send proof to the instructor at least within one week from the exam date. I will not consider any requests made afterwards. For valid requests, a make-up exam will be scheduled by the instructor at the earliest date possible, and it will not be postponed until the end of the final project.