PSYC 218-006: Analysis of Behavioural Data

Winter Term 2, 2019-2020
T/Th 9:30-10:50am, AERL 120
Online home: https://canvas.ubc.ca/courses/38472

Professor: Andrew Rivers, PhD
Office hours: Wednesdays 2-4pm @ Kenny 3110
Contact: amrivers@psych.ubc.ca

TEACHING ASSISTANTS:

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COURSE DESCRIPTION:

Numerical information is an important part of our daily lives. Scientific research, polls and our own informal data-gathering projects (Which car is the best deal? What class did students like the best last term?), are all characterized by interpreting data to support conclusions backed by evidence. This course introduces statistics as a tool for the analysis of quantitative data. We will cover descriptive statistics (how to look for patterns in a large data set), basic principles of probability, and inferential statistics (how to test hypotheses and draw conclusions about data). Becoming familiar with these topics will help you to analyze others' claims about data with a more trained eye, as well as to design, conduct, and analyze data from your own scientific research projects.

By the end of this course, a successful student can expect to be able to:

1. Understand differences between descriptive and inferential statistics
2. Explain *why* we use statistics in psychological science
3. Select appropriate statistical techniques for investigating different types of data
4. Interpret statistical findings from the Null-Hypothesis Statistical Testing framework, including strengths and limitations
5. Critique others' (e.g., researchers, media) interpretations of statistical findings
6. Integrate overlapping concepts related to inferential statistics including estimation, error management, effect size, and statistical power
7. Apply learning by calculating descriptive and inferential statistics in the SPSS statistical software package.

REQUIRED MATERIALS

1. Pagano, R. (2012). *Understanding Statistics in the Behavioral Sciences* (10th Ed.) Available at:
   a. UBC Bookstore, bundled with Francis & Neath *CogLab* (item 2).
   b. e-book version at www.vitalsource.com (ISBN 1111837260)

   Note: Earlier editions of the text are **probably** OK to use, but I cannot guarantee they cover all material required for this course

2. Francis, G., & Neath, I. (2007). *CogLab Online Version 5.0 with Access Code* (5th Ed.). An access code for *CogLab* is available at:
   a. UBC bookstore packaged with your Pagano text (item 1)
   b. Link provided on the front page of the course Canvas site.

3. Cuttler, C. (2014). *A Student Guide to SPSS, including SPSS Student Version 22* (2nd Ed.) Available at:
   a. UBC bookstore
   b. e-book at www.kendallhunt.com/cuttler.
      Either the hardcopy or e-book MUST come with an access code for SPSS, the statistics software we will be using throughout the course.
      SPSS is also available on many UBC computers (BUCH B101, B121, & Koerner library 218A; check here for drop-in times: https://isit.arts.ubc.ca/computer-lab/)

4. Scientific calculator: You will need a calculator that has both an *inverse* and *square root* functions. Graphing and/or programmable calculators are not permitted during exams.

LEARNING ASSESSMENT

ASSESSMENT TYPE	POINTS (%)	DUE DATE(S)
2x Midterm Exam	80 (40%)	2/6 & 3/12
1x Cumulative Final Exam	66 (33%)	TBD
6x Lab Assignments (2-parts each)	48 (24%)	
Part 1: *CogLab* or survey		1/14, 1/21, 2/11, 2/25, 3/3
Part 2: SPSS Assignments		1/23, 2/4, 3/10, 3/24, 4/7
3x HSP Research Experiences	6 (3%)	(Do it ***early*** in the term!!)
Total	200 (100%)	

Midterm Exams (2x)
There will be two midterm exams each worth 20% of your course grade. If you miss a midterm exam, your final exam will be worth 20% more points. Unless otherwise stated, ALL material covered in lectures, in the textbook, and in lab assignments is testable material on exams.

Cumulative Final Exam (1x)
The final exam will be cumulative and will be worth one third of your grade. The date and time will be determined by the registrar. **THERE IS NO MAKEUP FINAL** – do not book any trips out of town until the date of the final exam is determined.

Lab Assignments (6x)
There will be 6 total lab assignments in which you will first complete an online experiment using *CogLab* or a survey, and then using SPSS, we will analyze data from class responses.

So, for each Lab Assignment you will need to:

1. **Complete the listed experiment or survey** – each takes about 10-20 minutes to complete. If you do not complete the *CogLab* (or survey) component, 25% will be deducted from your final point total for the paired lab assignment (or 1% of your total course grade).
2. **Complete the SPSS assignment** – each assignment will vary in length depending on the topics covered. One week before the assignment deadline, there will be an in-class demonstration of the SPSS skills needed to complete the SPSS assignment. You will be penalized 2 points (or 25%) for each day that the assignment is late.

You are encouraged to meet with your TA's, other students, and/or Prof Andrew to discuss challenges as you work through the SPSS assignments. However, **you absolutely MUST analyze the data and write-up your findings ON YOUR OWN.**

HSP Research Experiences (3 credits each worth 2 points, or 1%)
Learning about and evaluating psychological science requires a working knowledge of *epistemology*—how do we know what we know? What do psychological experiments 'look' like? One excellent way to acquire this knowledge is to actively participate in psychological research. Students will participate in at least 3 hours of accredited psychology experiments at UBC (1% for each participation credit). To sign up for research experiences, see https://ubc-psych.sona-systems.com

As an alternative to participating in studies, students can complete writing projects, in which you read and summarize a research article. See the HSP website for detailed information including due dates and submission procedures for the writing projects.

MISCELLANEOUS COURSE POLICIES:

Course Format: Class time will be allocated to lecture, in-class practice, and small group discussion. I strive to maximize the time we have for each class; this means that I start lecture promptly, and I ask that you are present and ready to learn right at 9:30am and be prepared to stay until the end of the class period (please caffeinate accordingly ☺)

Lecture Notes: Lecture slides will always be posted online after class. These are not meant to substitute for being in class, but instead serve as a reminder of the material covered during class.

Email Policy: Please include "PSYC 218-006" in the subject heading of all emails. I will attempt to respond to questions within 24 hours. Emails will rarely be answered over weekends or holidays. Finally, I will not answer questions that are clearly described in the syllabus. If you have a question related to the course content that will take more than a sentence to answer, please meet with me during office hours or schedule a different time to meet with me.

Meetings: In-person meetings are the best way to discuss course material and questions. Please take advantage of my scheduled office hours and note that I am ***happy*** to schedule additional meetings if you are not able to meet during my office hours ☺

PSYC 218 Prerequisites: PSYC 218 requires completion of PSYC 217 and a declared major in Psychology, Cognitive Systems, or Speech Sciences. PSYC 218 is a program requirement to receive a BA degree in Psychology.

Psychology Department's Policy on Grade Scaling: In order to reduce grade inflation and maintain equity across multiple course sections, all psychology courses are required to comply with departmental norms regarding grade distributions. According to departmental norms, the mean grade in a 200-level class is 67 *for a good class*, 65 *for an average class*, 63 *for a weak class* with a standard deviation of 14 percentage points. Scaling is likely to be used in order to comply with these norms; grades may be scaled up or down as necessary by the professor, department, or school. Therefore, grades are *never* official until they appear on your academic record.

Reach out and ask for help if you need it

University students often encounter setbacks from time to time that can impact academic performance. If you run into difficulties and need assistance, I encourage you to contact me by email or phone during my office hours, before or after class, or by dropping into my office (location). I will do my best to support your success during the term. This includes identifying concerns I may have about your academic progress or wellbeing through Early Alert. With Early Alert, faculty members can connect you with advisors who offer students support and assistance getting back on track to success. Only specialized UBC advisors are able to access any concerns I may identify, and Early Alert does not affect your academic record.

For more information, visit www.earlyalert.ubc.ca or students.ubc.ca/livewell

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UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on **the UBC Senate website**

Week	Date	Topic	Read	Notes
1	1/7	Measurement Basics	Ch. 1 & 2	
1	1/9	Frequency Distributions	Ch. 3	
2	1/14	Central Tendency & Percentiles	Ch. 4	***CogLab*** 'Stroop' due at 11:59pm
2	1/16	Variability	SPSS Ch. 1&2	**In class:** SPSS Demo 1
3	1/21	*z*-scores	Ch. 5	**Qualtrics survey 1** ***CogLab*** 'Memory Span' both due at 11:59pm
3	1/23	Correlation	Ch. 6	**SPSS Assignment 1** due at 11:59pm
4	1/28	Linear Regression	Ch. 7 SPSS Ch. 3&4	**In class:** SPSS Demo 2 & 3
4	1/30	Sampling & Probability	Ch. 8	
5	2/4	Catch-up Day		**SPSS Assignments 2 & 3** due at 11:59pm
5	2/6	Midterm Exam 1		**Exam during class time:** Covering Ch. 1-8
6	2/11	Probability		***CogLab*** 'Change Detection' due at 11:59pm
6	2/13	Binomial Distribution	Ch. 9	
2/18 & 2/20		**No Class: Reading Break**		

Week	Date	Topic	Read	Notes
7	2/25	Hypothesis Testing & Sign Test	Ch. 10	***CogLab*** 'False Memory' due at 11:59pm
7	2/27	Sampling Distributions	Ch. 12 SPSS Ch. 6	**In class:** SPSS Demo 4
8	3/3	*z*-test		***CogLab*** 'Risky Decisions' due at 11:59pm
8	3/5	Statistical Power		
9	3/10	Catch-up day		**SPSS Assignment** #4 due at 11:59pm
9	3/12	Midterm Exam 2		**Exam during class time:** Covering Ch. 9, 10, & 12
10	3/17	Single Sample *t*-test	Ch. 13 SPSS Ch. 7	**In class:** SPSS Demo 5
10	3/19	Effect Sizes		
11	3/24	Confidence Intervals		**SPSS Assignment #5** due at 11:59pm
11	3/26	Two sample *t*-tests	Ch. 14	
12	3/31	More *t*-tests	SPSS Ch. 7	**In class:** SPSS Demo 6
12	4/2	ANOVA (*F*-tests)	Ch 15	
13	4/7	Wrap-up		**SPSS Assignment #6** due at 11:59pm
-	TBD	FINAL EXAM		

***** FINAL EXAM DATE WILL BE SET BY REGISTRAR *****
DO NOT BOOK TRAVEL DURING EXAM PERIOD April 14-29 (inclusive)