**PSYC 217-901: Research Methods in Psychology**

Fall 2019, Term 1

Wednesday 5-8pm, AERL 120

Online home: <https://canvas.ubc.ca/courses/42995>

**Professor:** Andrew Rivers, PhD

**Office hours:** Monday 1-3pm @ Kenny 3110

**Contact:** [amrivers@psych.ubc.ca](mailto:amrivers@psych.ubc.ca)

**TEACHING FELLOWS: .**

|  |  |
| --- | --- |
| Shunya Yagi  **Office hours:** Available by  appointment only  **Contact:** [syagi@psych.ubc.ca](mailto:syagi@psych.ubc.ca) | Ella Weik  **Office hours:** Wednesdays  12-1pm @ Kenny 3504  **Contact:** [eweik@bcchr.ca](mailto:eweik@bcchr.ca) |
| Daphne Ling  **Office hours:** Thursdays 3:30-4:30pm @ Kenny 3504  **Contact:** [daphne.ling@ubc.ca](mailto:daphne.ling@ubc.ca) |  |

**COURSE DESCRIPTION: .**

Research Methods in Psychology will prepare you to apply the scientific method to the study of human behavior. In this course you will learn about different methods of acquiring knowledge about human psychology—including experimental, quasi-experimental and non-experimental methods. You will also experience first-hand what it is like to be a psychological scientist as you 1) propose a research idea, 2) develop an experimental test of your research idea, 3) collect experimental data, 4) analyze experimental data, and 5) communicate your findings in a scientific report.

Most importantly, this course will allow you to further develop your skills as a critical consumer of scientific knowledge. This is not only a skill for scientists and academics; critical thinking is a highly valued skill in many professions, especially as the *Information Age* matures with the explosion of easily available and ‘big’ data.

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

1. Describe key scientific principles in psychology.
2. Explain, compare, and contrast various research methods used by psychologists, *including their relative strengths and limitations*.
3. Use scientific reasoning to interpret psychological phenomena.
4. Interpret, design, and conduct an experiment to investigate a psychological question.
5. Collaborate with a team to complete a coordinated research project.
6. Demonstrate basic competence in statistical literacy.
7. Apply ethical standards to evaluate psychological science.
8. Demonstrate effective writing skills for dissemination of scientific findings.
9. Exhibit effective presentation skills for dissemination of scientific findings.
10. Critically evaluate research studies and their conclusions.

**COURSE BASICS: .**

**PSYC 217 PREREQUITES AND PATHWAYS BEYOND:** PSYC 217 requires completion of both PSYC 101 and PSYC 102. PSYC 217 is a program requirement to receive a B.A. in Psychology and is the pathway to enroll in PSYC 218 (*Analysis of behavioral data*).

**REQUIRED MATERIALS:**

Cozby, P. C. & Rawn, C. D. (2016). *Methods in behavioural research* (Second Canadian Ed.)*.* Toronto, ON: McGraw-Hill Ryerson. ISBN 978-1-25-9088469

**OPTIONAL MATERIALS:**

Cuttler, C. (2010). *Research methods in psychology: Student lab guide*. Dubuque, IA: Kendall Hunt. ISBN: 978-0-7575-7968-4

Electronic text available at <https://he.kendallhunt.com/product/research-methods-psychology-student-lab-guide>

**COURSE WEBSITE:** All materials including an electronic syllabus, supplemental readings, lecture slides, and assignment information are located at our online home: <https://canvas.ubc.ca/courses/42995>

**COURSE FORMAT:** Course time will be allocated to lecture, in-class activities, and small group discussion. In each lecture, I will strive to maximize the time we have for each class. This means that I will start lecture promptly, and I ask that you are present and ready to learn right at 5pm and be prepared to stay alert until 8pm (please caffeinate accordingly ☺)

**LEARNING ASSESSMENT (OVERVIEW): .**

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| --- | --- | --- |
| ASSESSMENT TYPE | POINTS (%) | DUE DATE(S) |
| 5x Closed-book Quizzes | 50 (25%) | 9/18, 9/25, 10/9, 10/30, 11/13 |
| 1x Cumulative Final Exam | 50 (25%) | TBD |
| 4x Individual Article Reviews | 16 (8%) | 9/11, 10/16, 11/6, 11/27 |
| 4x Group In-class Article Reflections | 4 (2%) | 9/11, 10/16, 11/6, 11/27 |
| 4x Research Experiences | 8 (4%) |  |
| TCPS tutorial | 2 (1%) | 9/20 |
| Lab Research Project | 70 (35%) | See supplemental syllabus |
| Total | 200 (100%) |  |

**LEARNING ASSESSMENT (DETAILS): .**

**Closed-book Quizzes (5x)**

There will be 5 closed-book, closed-note quizzes each worth 5% of your course grade. These will be non-cumulative; however, there is substantial overlap in material. That is, we will revisit many topics covered early in the course. There will be no makeup quizzes. If you need to miss a quiz, your next quiz will count for double. You must have documentation for any missed quiz and you may not miss more than 1 quiz.

**Cumulative Final Exam (1x)**

The final exam will be cumulative. The date and time will be determined by the registrar. **THERE IS NO MAKEUP FINAL** so please do not book any trips out of town until the date of the final is determined.

**Individual Article Reviews (4x)**

There will be 4 assignments in which you will read an empirical research article and demonstrate your ability to evaluate aspects of experimental research. Each of these will be submitted to Canvas. These may be completed well in advance of their due date and thus, there will be no makeup opportunities for missed article reviews.

**Group In-class Article Reflections (4x)**

For each empirical research article, we will gather together into groups during class to discuss our reactions to the article. Each group will generate a single page summary of their discussion (bullet points are acceptable) and will turn in this summary with the names of all group members. If you miss class, you can make up group article reflections by bringing documentation of your absence and meeting professor Rivers during office hours to discuss the article with him.

**Research Experiences (4x)**

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 4 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.

**TCPS Tutorial**

All psychological scientists must complete the Tri-Council Policy Statement (TCPS) ethics tutorial. This tutorial is required for you to collect data for the lab component of this course. Please set aside approximately 2 hours to complete the TCPS tutorial. You will receive an automatic 1% if you submit your TCPS completion form to the Canvas website before the listed deadline. Even if you miss this deadline, you still must submit your completion form to participate in lab 3 (which will result in immediate forfeiture of 5% of your course grade, see *Research Project Syllabus* on pp.8).

**Lab Research Project**

A substantial component of the course is the lab research project that you will complete along with a small team of fellow researchers. Details about the lab research project can be found in the *Research Project Syllabus* (pp. 8).

**MISCELLANEOUS COURSE POLICIES: .**

**Lecture Notes**: Lecture slides will 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 217-901” 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.

**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.

**Psychology Department’s Policy on Academic Misconduct**: Cheating, plagiarism, and other forms of academic misconduct are very serious concernsof the University, and the Department of Psychology has taken steps to alleviate them. Inthe first place, the Department has implemented software that can reliably detectcheating on multiple-choice exams by analyzing the patterns of students’ responses. Inaddition, the Department subscribes to TurnItIn – a service designed to detect and deterplagiarism. All materials (term papers, lab reports, etc.) that students submit for gradingwill be scanned and compared to over 4.5 billion pages of content located on the Internetor in TurnItIn’s own proprietary databases. Note that TurnItIn is hosted on servers residing in the US. To ensure student privacy, it is permissible to register for TurnItIn using a pseudonym. The results of these comparisons arecompiled into customized “Originality Reports” containing several sensitive measures ofplagiarism; instructors receive copies of these reports for every student in their class.In all cases of suspected academic misconduct, the parties involved will be pursued to thefullest extent dictated by the guidelines of the University. Strong evidence of cheating orplagiarism may result in a zero credit for the work in question. According to theUniversity Act (section 61), the President of UBC has the right to impose harsherpenalties including (but not limited to) a failing grade for the course, suspension from theUniversity, cancellation of scholarships, or a notation added to a student’s transcript. All graded work in this course, unless otherwise specified, is to be original work done independently by individuals. If you have any questions as to whether or not what you are doing is even a borderline case of academic misconduct, please consult your instructor. For details on pertinent University policies and procedures, please see Chapter 5 in the UBC Calendar (http://students.ubc.ca/calendar) and read the University’s Policy 69 (available at www.universitycounsel.ubc.ca/policies/policy69.html).

**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*](http://www.earlyalert.ubc.ca)

For information about addressing mental or physical health concerns, including seeing a UBC counsellor or doctor, visit [*students.ubc.ca/livewell*](http://students.ubc.ca/livewell)

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.

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| **Class** | **Date** | **Class Part 1** | **Part 2** | **Part 3** | **Read** | **Notes** |
| 1 | 9/4 | Course Introduction | Science & Psychology | Levels of Analysis, Goals of Research | Ch. 1 |  |
| 2 | 9/11 | Basics: Research Ideas | Basics: Research Design | Article Group Discussion #1 | Ch. 2, 4 | Article Review #1: **Due 4:30pm** on Canvas |
| 3 | 9/18 | **Quiz #1** | Experimental Design 1 | Experimental Design 2 | Ch. 8 |  |
| - | 9/20 |  |  |  |  | TCPS completion: **Due 11:59pm** on Canvas |
| 4 | 9/25 | **Quiz #2** | Conducting Experiments | LAB 1: *Brainstorming* | Ch. 9 |  |
| 5 | 10/2 | Complex Experiments 1 | Complex Experiments 2 | Special Experiments | Ch 10-11 |  |
| 6 | 10/9 | **Quiz #3** | Ethics in Research | LAB 2: *Group Proposal* | Ch. 3 |  |
| 7 | 10/16 | Measurement 1 | Measurement 2 | Article Group Discussion #2 | Ch. 5 | Article Review #2:  **Due 4:30pm** on Canvas |
| 8 | 10/23 | Describing Variables 1 | Describing Variables 2 | LAB 3: *Data Collection!!* | Ch. 12 |  |
| - | 10/28 | Meet at SWNG 121 at 6pm |  |  |  | EXTRA DATA  COLLECTION DAY! |
| 9 | 10/30 | **QUIZ #4** | Statistical Inference 1 | LAB 4: *Summarizing Data* |  |  |
| 10 | 11/6 | Statistical Inference 2 | Statistical Inference 3 | Article Group Discussion #3 | Ch. 13 | Article Review #3:  **Due 4:30pm** on Canvas |
| 11 | 11/13 | **QUIZ #5** | Observational Methods | LAB 5: *Writing* |  |  |
| **Class** | **Date** | **Class Part 1** | **Part 2** | **Part 3** | **Read** | **Notes** |
| 12 | 11/20 | Generalizability 1 | Generalizability 2 | Paradigm Shift / Replication 1 | Ch. 14 |  |
| - | 11/25 | FINAL REPORT DUE |  |  |  | Individual Research Report **Due by 11:59pm** |
| 13 | 11/27 | Paradigm Shift / Replication 2 | Article Group Discussion #4 | Wrap-up |  | Article Review #4:  **Due 4:30pm** on Canvas |
| - | 11/29 | POSTER DAY!! |  |  |  | **5-6:30pm** @ Life Sciences Building, 2350 Health Sci |
| - | 12/16 | **FINAL EXAM** |  |  |  | **7pm** @ Location TBA |

PSYC 217: Lab Research Project Syllabus

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# Overview

The purpose of this project is to give you—and everyone who takes PSYC 217—an opportunity to apply what you are learning in class to a real research project. You will work in a team to generate and test a hypothesis about human behaviour*,* and you will report these results in professional written and poster formats. This project has been designed to incorporate as many elements as possible of the process in which psychological scientists engage to gain insight into human behaviour.

**This document serves as a Lab Syllabus, common across all sections of this course. If you find any information in this document that conflicts with something your section instructor has said or included in their syllabus, please ask your instructor for clarification as soon as possible.**

## Learning Objectives

By the end of this lab assignment, you should be able to

* generate a research idea, hypothesis, and method to test that hypothesis
* design a minimal-risk, two-group experiment to test a hypothesis
* design and implement a protocol to collect data from human participants
* enter, store, and share data from human participants while maintaining their anonymity and confidentiality
* explain the steps of conducting experimental research, from study conception and design to reporting
* reflect on the process of conducting experimental research

By completing this paper and poster, based on your group research project, you should be able to

* explain operational definitions and a research procedure to enable others to perform a close replication that would test the same hypothesis
* conduct appropriate basic statistical analysis (means, standard deviations)  and interpret the results from an experiment
* identify specific strengths and limitations of one's own experimental design
* independently write a research report using the conventions of our discipline (i.e., APA style) that summarizes and interprets your group's experiment and results, and situates it in the context of past research

# Lab Summary and Attendance Policy

You will receive guidance from your Teaching Fellow at each stage of the process. Lab Meetings, led by a Teaching Fellow, will take place during class time, but in a smaller room, **five times throughout the course (see the course schedule in your section’s syllabus for dates)**.

*Attendance at all Lab Meetings and the Poster Session (****last Friday of the term, 5-6:30pm****) is required.* ***You will lose 5% of your course grade for each Lab meeting that you miss*** *(e.g., if you miss 2 of the meetings, you will lose 10% of your course grade, simply for not showing up).* ***Students who are more than 15 minutes late for lab will be considered absent. Absences longer than 15 minutes must use the Request for the Excused Absence form (see below).***

If you are unable to attend any lab meeting or the poster session, you must complete the **Request For Excused Absence Form**, available on Canvas or [directly here](https://ubcarts.ca1.qualtrics.com/jfe/form/SV_6J8MVu405lMwJi5), and send documentation to the 217 Course Coordinator, currently Dr. Mark Lam ([mlam@psych.ubc.ca](mailto:mlam@psych.ubc.ca)). This form must be submitted at **least 10 days** before the session to be missed. ***In case of emergency,***the form must be submitted within 3 days of missing the event (*or as soon as possible*). If the 217 course coordinator approves your documentation for missing a Lab, you will still be responsible for communicating with and contributing to your team but you will not lose points for missing lab. If your documentation is approved for missing the poster session, typically you will be expected to schedule a meeting with your Teaching Fellow or Instructor and orally present your poster on your own. You will then receive your group’s grade for the poster. *An unexcused absence from the poster session will result in a loss of 10% of your course grade.*

**LAB MEETING SCHEDULE**

LAB MEETING 1 – RESEARCH DESIGN: You will meet with your team in your lab break-out room to brainstorm a research question and design a brief, simple, minimal risk **experiment** to address the question. The experiment must not require more than 5 minutes of each participant’s time. Your Teaching Fellow will be present to assist and guide you. Come to the meeting prepared with some ideas so you can maximize your time together. You will be able to start posting ideas in advance on Canvas as soon as teams are established. *See Cuttler’s guide, Chapter 1, for further guidance and tips, as well as Cozby & Rawn textbook Appendix A for ideas.*

LAB MEETING 2 – PROPOSAL PRESENTATION: Your team will give a 5-minute presentation of your proposed research question and design. During this presentation you should: i) state your research question and why it is interesting, ii) clearly describe the independent variable and how it will be manipulated (2 conditions only), iii) clearly describe the dependent variable and how it will be measured, iv) discuss any controls you plan to implement, v) state your hypothesis. Each presentation will typically be followed by a brief discussion period where your classmates and Teaching Fellow will ask questions and provide suggestions for improving your study design. Failing to present a proposal will result in all team members receiving a 5% deduction. Deductions may also apply in cases where there is clear evidence a team member has not contributed to this proposal (see the course instructor). *See Cuttler’s guide, Chapter 2, for further guidance and tips.*

***Option to Pre-Register your Study.*** Predict the results of your experiment in advance and make them public! Once you’ve finalized your research methods by addressing your classmates’ and TF’s feedback and, you can join the pre-registration movement **prior** to collecting data in Lab Meeting 3. See the end of this document for an explanation of the importance of pre-registration and instructions on how to pre-register your predictions at AsPredicted.org.

LAB MEETING 3 – DATA COLLECTION: You will collect data for your experiment using your classmates as participants. Your team must arrive to this meeting with all of the materials needed to conduct your experiment, including consent forms for your participants. Use the template Consent Form available for download on Canvas. This meeting is the primary (and required) opportunity to collect data.

Your team may also opt to collect data (along with other teams across all sections) on the Bonus Data Collection day (BDCD). Collecting data on BDCD is optional, but will increase your sample size, impress your TF, and, importantly, make you eligible for the prestigious Best Poster Award!! To participate in BDCD, at least 3 members of your team must present. The time and location of BDCD will be posted on Canvas.

*Collecting data outside these two meeting times and/or with individuals other than your 217 classmates and Teaching Fellows is not covered by our ethics approval certificate (H13-01648) and will result in a major deduction from your lab component grade.* While some team members are collecting data, you are invited to participate in all other teams’ studies. *See Cuttler’s guide, Chapter 3, for further guidance and tips.*

**LAB MEETING SCHEDULE (cont.)**

LAB MEETING 4 – DATA SUMMARY: Your TF will help you learn how to meaningfully summarize your data, including calculating descriptive statistics and creating graphs using Microsoft Excel. Come prepared with your raw data and a plan for summarizing it that you can discuss with your TF. *See Cuttler’s guide, Chapter 4, for further guidance and tips, and Appendix 2 for examples.*

LAB MEETING 5 – WRITING AN APA STYLE RESEARCH REPORT: Your TF will help you learn how to write an APA style research report. You may wish to come prepared with a rough draft of your paper as well as specific questions and challenges you are having with its preparation. *See Cuttler’s guide, Chapter 5, as well as Cozby & Rawn textbook Appendix A for further guidance and tips.*

# On Teamwork

The vast majority of research conducted in psychology is collaborative. Reflecting this trend, you will work closely in teams of 5-6 on this project. Teams will be assigned immediately after the add/drop period. We encourage you to **work together in the spirit of collaboration**. We also know that **team work can sometimes be challenging.** To help you achieve excellence in your projects, each team will have a **private discussion thread on Canvas** to collaborate with each other throughout the term. Using this thread provides a permanent record of your team collaborations, and might be helpful if a team dispute arises. You are always welcome to **seek your instructor and/or TFs out for help and advice** on your team dynamics. If your team is having great challenges, there is a form on Canvas (or available [directly here](https://ubcarts.ca1.qualtrics.com/jfe/form/SV_0StAYZyj8RpYUlL)) that you can submit a **formal request for mediation**. In the past, such mediation has typically led to positive team progress. In extreme cases of non-participation, the group poster grade may be decreased for an individual student.

# Ethical Considerations

This class project has received ethical clearance by UBC’s Behavioural Research Ethics Board (BREB). All Research Projects must adhere to Minimal Risk guidelines in terms of topic, methods, and operational definitions. It is our responsibility on the teaching team and as classmates to interpret these guidelines conservatively, so that this class project does not harm a vulnerable classmate. Please ask your course instructor if there is any ambiguity here whatsoever.

All students must be familiar with the Tri-Council Policy Statement, which is a document outlining various ethical considerations and the obligations of researchers conducting research with human participants. Because you'll be using your fellow classmates as participants in your study, you need to complete and pass the TCPS2 ethics tutorial. The tutorial takes about 2 hours to complete and can be found at <https://tcps2core.ca/welcome>. After successfully completing the tutorial you will receive a certificate of completion which should be saved as a PDF and submitted to Canvas/your TF. **Students who submit their certificate of completion will receive 1% toward their course grade (consult your Section’s syllabus for the specific deadline).** Students who do not submit a certificate by the start of Lab 3 will not be permitted to experiment on classmates, will serve only as participants for others’ research, and may incur a deduction on their participation grade.

# Communicating your Results

After conducting research and generating conclusions, psychological scientists (like all scholars) need to communicate their methods and findings to the scientific community. For your research projects, we consider our class as well as all sections of Psyc 217 as our common scientific community. You will be asked to communicate your research findings in written form (one APA Style Report per person), and in poster form (one per team) to be presented at the *Annual Psychology 217 Research Methods Poster Session*.



Poster Session (10%): **FRIDAY OF THE LAST WEEK OF CLASSES, 5-6:30PM, EAST ATRIUM OF UBC LIFE SCIENCES INSTITUTE (2350 Health Sciences Mall)** Approximately 600-700 students, 16 Teaching Fellows, and 5 Instructors from all 8 sections of Psychology 217 will meet to share and learn about everyone’s research projects. You will prepare, as a team, a poster that summarizes your research project’s hypothesis, method, results, and conclusions. This kind of presentation is common at professional scientific conferences; all of us on the teaching team have presented our research at this kind of poster session. During the poster session, you will be asked to evaluate your peers’ posters (from a different section). Your poster grade will be a combination of your Teaching Fellow’s rating and the average of five peers’ ratings. Each group member should be prepared to discuss their research project in detail, and answer any questions attendees (and evaluators) may have. More details about how to prepare for the poster and presentation, as well as how to evaluate others’ posters will be provided later in the term. **NOTE: TO ACCOMMODATE ALL SECTIONS, THE POSTER SESSION IS IN THE EVENING ON THE LAST FRIDAY OF THE TERM. IT IS A MANDATORY COURSE EVENT; MARK YOUR CALENDAR NOW.**

Individual Research Report (25%): **Due Monday of the last week of classes, 11:59pm**

The most important step in the research communication process for researchers is to clearly document their research and the contribution it makes to understanding human behaviour in a written manuscript. These written manuscripts are then reviewed by their peers, and (hopefully!) published in a journal. This individual report is designed to give you experience with a part of this process.

Reports are to be prepared independently; each team member must prepare a report separately from other team members. Evidence of collaboration or co-writing the reports will result in major deductions from your lab component grade and in severe cases may result in a grade of zero on the lab component.

Format:Your report must be written using APA style and must include the following sections: Abstract, Introduction, Method, Results (including at least one graph), Discussion and References (at least 2). See Appendix A of your Cozby and Rawn text, the Publication Manual of the American Psychological Association (6th ed.), and Cuttler’s guide (Chapter 5), for guidance in writing APA style reports.

Reports must be between 5 and 7 double spaced 8.5 x 11 inch pages (approximately 1500-1700 words). This page limit does NOT include a cover page, abstract, references, graphs, tables or appendices. *Exceeding the page limit gives one an unfair advantage over other students, therefore we must stop reading after 7 pages.* You must use 12 point Arial, Times New Roman, or Calibri font and margins must be set to 1 inch all around. Your paper should integrate into the introduction section at least 2 references to related empirical journal articles (e.g., to set up a foundation for your hypothesis). Articles can also be used in the discussion section to help put results into context.

Submission:**Reports are due on** **the Monday of the last week of classes** **by 11:59pm**. If you fail to do either submission by the deadline, your report will be considered late. You will lose 10% for each day the report is late.

* + - 1. Convert your paper to a single .pdf file. Submit this .pdf on Canvas in the relevant Assignment by 11:59pm on the due date.
      2. Remove identifying information from the cover page, and convert your paper to a single .pdf file. Submit this anonymized .pdf on TurnItIn by 11:59pm on the due date. Go to [turnitin.com](http://turnitin.com), create an account (if you do not yet have one), enter your course ID and password, specific to your Section.
      3. Please consult with your Section Instructor to find out whether you need to submit a hard copy.

The content of both copies must match each other, with the exception of the identifying information. We will use TurnItIn to cross-check your paper with an enormous database of websites, past submissions, and published works. To learn more about TurnItIn and UBC’s policies about it, see <http://vpacademic.ubc.ca/academic-integrity/turnitin-at-ubc/>.

Grading:The lab report is worth 25% of your grade, and marked using a rubric common across all sections. You will be graded on the following: Abstract and Introduction, Method, Results (including Figure), Discussion, proper use of APA format and writing style. Please see the next page for key components to include for each category. In addition to your TF and instructor, Lab 5, Cuttler Chapter 5, and Cozby & Rawn Appendix A are all helpful resources for preparing your paper.

# PSYC 217 APA Style Lab Report Grading Criteria

|  |
| --- |
| 1. **ABSTRACT AND INTRODUCTION** |
| * Abstract clearly summarizes the paper within the word limit (100-150 words) |
| * Introduction flows from more general topic area to specific hypothesis |
| * Clearly describes the relevant details for one past published research study. |
| * Clearly describes the relevant details for a second past published research study. |
| * Clear purpose for the study is discussed in relation to the past research and/or observed phenomenon |
| * Clear description of hypothesis |
| 1. **METHOD** |
| * Brief description of participant characteristics |
| * Clear enough description of materials & procedures to permit replication |
| * Complete description of how independent variable was manipulated |
| * Complete description of how dependent variable was measured |
| * Discussion of controls implemented |
| 1. **RESULTS AND FIGURE** |
| * Clear explanation of how each variable was calculated |
| * Appropriate descriptive statistic(s) clearly provided/described (e.g., mean and standard deviation for each group) |
| * Graph is appropriate and features data relevant to hypothesis test |
| * Data and labels on the graph are correct and are coloured/patterned uniquely from the rest of your group |
| 1. **DISCUSSION** |
| * Clear and correct summary of results |
| * Evaluation of result in context of hypothesis |
| * Comparison or connection to research findings or theory (typically those from the introduction) |
| * Discuss one limitation to the study’s internal validity |
| * Discuss one limitation to the study’s external validity |
| * Discuss and justify one concrete idea for future research (e.g., address a limitation, extend the theory) |
| * Discuss one meaningful contribution and/or implication of the study (e.g., tied to original purpose) |
| 1. **WRITING STYLE AND APA FORMAT** |
| * Written clearly, concisely, and grammatically |
| * Proofread: No typos or spelling errors |
| * Content organized using APA style (IMRD) paper structure and headings |
| * Used APA style for citation and references |
| * Paper formatted correctly (title page, double spaced, 1” margins, reasonable 12 point font) |

# Optional Research Project Pre-registration

***The Importance of Prediction in Evaluating Scientific Theory.*** Researchers often times make predictions about how the results of their experiment will turn out. They often derive these predictions from theories of human behavior. When a theory makes a correct prediction about an experiment, researchers can argue that the theory is supported, or strengthened.

For example, Theory A predicts that X will happen and that Y will not happen.

* If we observe X, then it appears that Theory A is supported (or correct)
* If we observe Y, then it appears that Theory A is refuted (or incorrect)

But, if we observe Y, researchers might argue that the theory is not refuted because some other superficial variable interfered. For example, researchers might argue that, “*we would have observed X if we used a better measure,*”or that, “*the testing environment was not correct to observe X.*”In this way, researchers can protect the theory by proposing superficial reasons why it failed to predict the results of an experiment.

There is another way to protect the theory. If we observe Y, researchers might argue that they actually predicted Y, and not X, all along. Thus, observing Y now supports rather than refutes the theory!! Outside observers don’t often know what researchers actually predicted in advance, and we see in this example that predictions are an important way we evaluate scientific theory.

***Pre-registration: Making our Predictions Public.*** The scenario described above is problematic because we need to know what researchers predicted in advance, but we usually don’t have that information. Predictions were made by the researchers in private. The pre-registration movement proposes that all researchers publicly predict the results of an upcoming experiment.

Now we can know what researchers predicted in advance and how to evaluate the results of their experiments - awesome!!

***AsPredicted.org: A Free Pre-registration Platform***. In this class, we invite all of our student researchers to join in the pre-registration movement. To do this, all students can use the free online pre-registration platform at [https://AsPredicted.org](https://aspredicted.org)

To complete a pre-registration document, student researchers need only to answer 8 simple questions about their upcoming experiment. These questions ask about the experiment’s hypothesis, independent and dependent variables, participant sample, and analytic approach.

***AsPredicted.org: How-to Guide.*** Below is a step-by-step guide to make your own pre-registration document. It’s simple, quick, and helps us all do better science!

**Step 1**: Navigate to [https://AsPredicted.org](https://aspredicted.org) and click on the button labeled “**CREATE**”--note that you ***DO NOT*** need to create an account to use AsPredicted.

**Step 2**: Enter contact information for 1 or more student researchers. You will need to enter at least one valid email address to retrieve your pre-registration document.

**Step 3**: Answer questions about your experiment and your experimental predictions.

1. *Data Collection.* Choose “**No, no data have been collected for this study yet”**
2. *Hypothesis.* Here you can write a few sentences about the Theory that you are testing, and what Hypothesis or Predictions you are making about your experimental results.
3. *Dependent Variable*. If participants will complete a standard survey/questionnaire, **describe it**.  If observing people’s behavior, describe the behavior and how you will quantify it.
4. *Conditions.* This is your independent or manipulated variable. All research projects will consist of 2 conditions or levels of the independent variable. Describe the difference or differences between your conditions.
5. *Analyses.* Usually student researchers will conduct **descriptive analyses**, but some may also conduct a Student *t*-test.
6. *Outliers and Exclusions.* Are there any reasons why you would not analyze a person’s data? Usually, you can enter “**N/A**” for this item.
7. *Sample Size.* State the number of participants you wish to sample from. An acceptable answer for your research project may be: “**As many participants as possible during the 2 in-class data collection opportunities**”
8. *Other. Anything else you would like to pre-register?* Describe anything unusual about your experiment that will help others know more about your predictions or your experimental setup. Usually, this item is left **blank**.
9. *Name.* Give your pre-registration document a title!
10. *Finally. For record keeping purposes, please tell us the type of study.* Choose**“Class project or assignment”**

**Step 4**: Select “**PREVIEW**” to see your full pre-registration, then click “**SUBMIT**” at the bottom of the preview page.

**Step 5**: Check your email for confirmation of your submission. Click on the link in the email, then click “**APPROVE**” at the bottom of the screen.  That’s it, you’ve pre-registered your study!