

# Research Methods in Psychology

Psyc 217 Sections 001 and 002  
 Winter 2019/2020  
 Version 2: 3 September 2019  
Musqueam Territory



## What is this Course About?

Modern psychology uses the tools of science to investigate behaviour. By successfully completing this course, you will be able to thoughtfully understand and contribute to these scientific investigations. Together, we will explore the foundations of the scientific method, the core experimental and non-experimental research designs psychologists most often use to test their hypotheses, and current issues in our science (e.g., replication, ethical practices). You will be able to apply your knowledge to collaboratively design your own research study, collect and briefly analyze data, and present your results in written and poster forms. You will be prepared to critically consume psychological claims made in the media, to engage effectively in future courses in psychology, and to pursue further research experience in the social sciences.

## Quick Facts About Class

**Classes are held Monday, Wednesday, Friday, 9-9:50am (Section 1), 10-10:50am (Section 2) in [AERL Room 120](#). Attendance is expected and is necessary for success. To receive your iClicker participation points and to work with your team, you must attend the section for which you are registered. Show respect for your fellow learners and leaders, including arriving on time and leaving after dismissed. Bring your iClicker device, paper and writing tools, and your readings. You may choose to bring a computer, but I discourage it because of its tendency to side-track attention – yours and others – and reduce long-term retention (Fried, 2008; Glass & Kang, 2018; Sana, Weston, & Cepeda, 2013).**

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## Meet your Leaders in Learning

**INSTRUCTOR** Dr. Catherine Rawn  
**Office:** [Kenny Psychology Building](#), Room 2523



**Welcome to my drop-in office hours:**  
 Mon 11-12, Wed 11:45-12:45. Some appointments can be made if necessary.  
**Email:** [cdrawn@psych.ubc.ca](mailto:cdrawn@psych.ubc.ca) **All general questions should be posted on the Discussion Board in Canvas** so everyone can help each other quickly. If you need to email me directly, please put "Psyc 217" in the Subject line and use your [UBC email account](#) or your message could get misdirected. I try to respond as quickly as possible, but 48 hours for a reply (excluding evenings and weekends) is about typical.

**Web:** <http://blogs.ubc.ca/catherinerawn/> **Twitter:** @cdrawn

**TEACHING FELLOWS** TFs are here to help you learn and to help me to evaluate your learning. They will teach lab sections, grade papers and exams, hold office hours for you, and respond to brief questions on the Canvas Discussion or sent via email. If you cannot make their scheduled office hours, email them to work out an alternative appointment.



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*Coming soon!*



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## Course Goals

I designed this course carefully, with specific goals in mind. Together, these goals reflect 10 of the 19 guidelines put forth by the American Psychological Association as key for the undergraduate psychology major (American Psychological Association, 2013). *If you are willing and able to meet the requirements, by the end of this course, you will be able to...*

1. describe basic characteristics of the science of psychology, and how they come together to create knowledge.
2. explain, compare, contrast, and interpret various research methods used by psychologists, including their key characteristics, strengths and limitations.
3. design and conduct a basic study to address a psychological question using appropriate research methods and creative operational definitions.
4. evaluate conclusions drawn by yourself and others from various research designs.
5. know and follow ethical guidelines in all aspects of scholarly work (e.g., literature search, research design, data collection, analysis, interpretation, reporting).
6. use critical thinking effectively (e.g., evaluate the quality of information from various sources; challenge claims that arise from untested assumptions).
7. begin to exhibit quantitative statistical literacy.
8. demonstrate effective technological, written communication, and oral communication skills in various formats and for various scholarly purposes.
9. exhibit the ability to collaborate effectively, including working within a team to complete projects in a reasonable time frame, and managing conflicts appropriately.
10. reflect on your research-related experiences and find meaning in them.

## Fitting this Course in Your Degree

Our course concepts provide a strong foundation for *all* subsequent coursework and Research Assistantships in Psychology, other behavioural sciences (e.g., marketing, economics, sociology), and for being an informed citizen. Moreover, there is lots of support available to you while taking this course (teammates, TFs, instructor).

**Pre/Co-Requisites** *To take this course, you must have taken (or currently be taking):* Either (a) PSYC 100 or (b) all of PSYC 101 and PSYC 102. *This course is a Prerequisite for:* PSYC 218 and 359 (Statistics), PSYC 349/449 (Honours), and some other courses.

**Considering Withdrawing?** Check [these dates](#) to find out whether it will affect your transcript or not. A portion of this course is devoted to teamwork. Your team depends on you! If you are considering withdrawing after the second week of classes please see me to discuss options.

## Materials: What Do You Need?

1. **Cozby, P. C., & Rawn, C. D. (2016). *Methods in Behavioural Research* (2<sup>nd</sup> Canadian Ed.). Toronto, ON: McGraw-Hill Ryerson.**
  - Available new, used, or electronic. **Avoid earlier editions as there are substantial changes.**
  - Yes, I am the second author. I donate all royalties from UBC sales to UBC scholarships.
  - An OPTIONAL Smartbook study tool with ebook access is available directly from McGraw-Hill [here](#). After purchase, use your Smartbook access [here](#).
2. **iClicker Student Response System**
  - Participate every class by answering questions and polls on an iClicker. Devices can be purchased at the bookstore, used or new. You must REGISTER YOUR iClicker on Canvas to receive the points you earn in class. (There is an app version but it is not supported in this course. Former students reported being distracted by having their mobile device out during class, and it doesn't work as reliably.)
3. **Canvas.ubc.ca**
  - Keep organized here. Find **learning objectives before** and **PowerPoint slides after class, discussion threads, weekly announcements, request forms, submit assignments, your grades, calendar to sync, and links and instructions for all other websites. Rather than emailing questions to the teaching team, please post your questions in the discussion threads here.** Log in often using your CWL.
4. **Cuttler, C. (2010). *Research Methods in Psychology: Student Lab Guide*. Dubuque, IA: Kendall Hunt.**
  - This lab guide will help you and your teammates create a successful research project. Electronic version (180 day rental) is available [here](#).
5. **Required Supplemental Readings**
  - See page 11 for the article list. All are available for download from library.ubc.ca.

**Financial Hardship:** If you are experiencing serious financial hardship and are unable to purchase some or all of the required materials, please come see me and I'll do my best to set you up with what you need. The Cozby & Rawn text is also on reserve at Koerner library (well, it should be – let me know if it's not).

## Learning Appraisals (Overview)

The distribution of assessments in this course is 54% for exams, 39% for written and verbal communication related to the research process, and 7% for active participation in the research & learning process. Everyone will practice a variety of skills that will benefit them in future classes, in the workplace, and in their personal lives. These include: professional writing, public speaking, collaboration with others, and synthesis of a range of material (see Course Goals, especially 8 and 9). The more you participate, the more you will get out of this course. *Please find details of each Learning Appraisal after the table below.*

Learning Appraisal	Points	Due Date(s)
3 Two-Stage Quizzes worth 8% each (weighted 90% individual, 10% team)	24%	Wednesday September 25, Friday October 18, Wednesday November 13
Two-Stage Final exam (weighted 90% individual, 10% team)	30%	Date set by registrar (Exam period: Dec 3-18, 2019)
Communicating Psychology Assignment	4%	Recommended: October 4 Final deadline: November 4
Research Experience Component (REC) (1% TCPS, 4% HSP)	5%	TCPS certificate must be submitted by Lab 2 HSP must be completed by the last day of classes
Participation	2%	iClicker continuous, peer evaluations
Lab Research Project	35%	
Team Oral Presentation (-5% if incomplete)		Lab 2
Individual APA-style Report (25%)		Online Monday November 25, 11:59pm
Team Poster Presentation (10%)		<b>Friday November 29, 5-6:30pm, West Atrium, LSI</b>
<b>Total</b>	<b>100%</b>	

## Learning Appraisals (Details)

### Two-Stage Quizzes (3 x 8%) & Final Exam (30%)

All quizzes and the final exam will require thorough understanding of course material, including the **ability to apply and integrate concepts across units**. Questions may include a **mix of multiple choice, true/false, fill-in-the-blanks, and short written answer questions**.

There will be three non-cumulative, two-stage quizzes in class. Each quiz will be out of approximately 25 points.

The two-stage final exam will be scheduled by the registrar during the official exam period; do not book any trips for these dates. If you have 3 or more exams scheduled to *start and finish* within a 24-hour period you may request to write the second exam on a different day. You must give the instructor of the second exam one month notice.

**Although the material covered after the third quiz will be featured prominently, the final exam is cumulative.** Research shows greater long term retention with multiple testing opportunities (Roediger & Karpicke, 2006). Because this material is important for success in future courses, a cumulative final is most appropriate. More details will be provided on the last day of class.

### Details about Two-Stage Testing Format

**What is a 2-Stage test?** In class, take the quiz or exam on your own, then immediately get into your team and retake it together so you have the chance to discuss and debate answers. Sit near your team. Individual performance will count for 90% of your score, and team performance will count for 10%. In rare cases where an individual score is higher than that person’s team score, the individual score will count for the full 100%.

**Why 2-Stage tests?** Data shows they help people learn and engage in courses (Gilley & Clarkston, 2014). They provide you with immediate feedback while you still remember the test questions. See my [blog post](#) or Rawn, Ives, & Gilley (2019) for more references and a lengthier rationale.



### Lab Research Project – 25% Individual, 10% Team

Please see the Common Lab Syllabus, attached below (p11-18), for details about the Lab Research Project, APA Style Research Paper, and Poster Session.

## Communicating Psychology Assignment – 4%

This brief assignment offers you experience finding an empirical journal article using the university's library system, identifying the major features of a study design, and communicating the most important findings in a compelling way. These skills provide the foundation for communicating about psychological research, and are relevant wherever you take your psychology degree. Your assignment should be no longer than 2 pages, and answer only the questions provided in the handout on Canvas. To accommodate your schedule, the assignment due date is flexible. I recommend you complete it by the recommended deadline. The absolute final deadline is one month later. No exceptions will be made to the final deadline.



## Research Experience Component (REC) – 5%

The REC is worth 5% of every Psyc 217 student's course grade: **1 hour of participation or 1 article summary = 1% x 4, plus 1% for completing the online Tri-Council Policy Statement (TCPS) tutorial** (details given in Lab 1). The REC is designed to help you learn more about psychology and how research is conducted, and to provide you with first-hand experience with psychological research. This experience may make understanding research easier (Ceynar Rosell et al., 2006) and may help you decide whether research is a reasonable career option for you.

One way to meet the REC requirement is to spend **four hours participating in psychology studies** through the Department of Psychology's Human Subject Pool (HSP) system. You can locate and sign up for studies by going to <https://ubc-psych.sona-systems.com>. If you don't already have a user account you will first need to request an HSP user account on that webpage. Once you have an account and have logged into it, you will be able to browse through all of the studies in which you can participate, sign up for studies and confirm your accumulated credits. The subject pool typically closes on the last day of class; I strongly urge you to participate *before* the last week to ensure appointments are available. Further instructions on how to use the HSP online system can be found at <https://psych.ubc.ca/undergraduate/human-subject-pool/> in the *HSP Information for Participants* document.

**As an alternative to participating in subject pool studies, you may choose to fulfill the REC by completing four library writing projects**, for which you read and summarize a research article. Each article summary counts as one hour of research participation. If you choose this library option, you **must consult the *HSP Information for Participants* document for details about the assignment requirements and submission process (including the deadline)**, available here: <https://psych.ubc.ca/undergraduate/human->

[subject-pool/](#). *Note: The article you choose for the communicating psychology assignment cannot count toward this credit. We will be cross-checking the articles.*



## Participation and Teammate Feedback – 2%

This course is designed to be experiential – involving group discussion, interactive activities, iClicker questions, and class projects. Thus, the success of the class for everyone, including your own comprehension of the material, depends upon your active participation (Michael, 2006). Because of the size of our class, it is challenging to measure individual participation on an ongoing basis. Therefore, your class contribution will be graded on (1) responses to iClicker questions, and (2) participation in peer evaluation of your teammates.

**2% FROM iClicker QUESTIONS:** Every class I will invite you to answer questions about our material. At the end of the course, all the points you earned for just answering questions (participation) and getting them correct will be added together. **If you earn at least 90% of the total available points, you will receive the full 2% toward your course grade.** This means you can miss up to a week's worth of responses with no penalty. If you earn less than 90% of available points, you will earn less than 2% (e.g., if you earn 45% of available points, you will earn 1%).

**-1% deduction for failing to complete either of two PEER EVALUATIONS:** Constructive feedback is part of any successful team project. By taking a few minutes to complete the peer- and self-evaluations, you will promote effective teamwork while avoiding the penalty. Evaluations will be conducted twice: first, after Lab 2 for *formative* purposes, as a chance to indicate what your teammates should keep doing well and what they need to work on. Occasionally, peer evaluations indicate a serious problem. *If such an issue arises, your team will be asked to meet with your instructor. If evidence indicates a team member is not contributing to the project, that person may not have access to the data from Lab 3, and that person's final report will consequently suffer.* The second, *summative* evaluation will occur at the end of the term, and may count toward your teammates' final poster grade.

The software program we will use to conduct these evaluations is called iPeer, and has been used extensively at UBC, particularly in Commerce and Applied Science.

- (1) Log in to Canvas using your CWL.
- (2) Click on the link to iPeer in the Assignments area.
- (3) Complete the peer evaluation for each of your teammates and yourself.

Be honest and constructive in your evaluations. Keep in mind that your teammates will receive the feedback, but will not know which teammate said what.

## Tips for Success: Choosing to Learn!

I believe you can master this course material, if you consistently choose to put in the effort required to do so. You should plan to spend about **3-5 hours out of class for every 1 hour in class** on this course. Note that some people will need more time than this.

What can you do *in class*?

- **Take notes** about what's being discussed, using what's on the slides to guide and organize your notes. (Don't just copy down what you see on the slides; you'll get those words later!).
- **Keep focused.** For example, avoid bringing a computer (or sitting behind someone else's) if it will be a distraction for you. Get adequate sleep and nutrition.
- **Actively participate in activities, demonstrations, and discussions; thoughtfully answer iClicker questions.** The point of all of these is to help you think about the material so you can master it and make it meaningful for your life.
- **Ask questions.** Be brave! If you would like clarification or are interested in how a concept connects or applies in some way... ask it!

What can you do during those 9-15 hours per week you spend on this course *outside class*?

- **Work on your Assignments.** It might feel like assignments are an extra task, but completing them *is studying!* You will need to find and read journal articles that offer examples of research designs from class, as well as APA style. What could be a better way to study?
- **Meet with your group.** Either in person or online, spending time working on your project together can help you apply concepts from class, making them more memorable. You might even study together!
- **Add to your class notes.** Fill in any missing gaps before you forget! Integrate your notes with the slides posted on our Canvas course website. *Build your notes so you can use them to study later.*
- **Come to office hours and post questions and answers on Canvas.** Get to know your Leaders in Learning, ask questions about course material, and find out more about psychology and research methods.
- **Prepare for the next deadline.** There are many components and deadlines to track. Stay organized and plan ahead to set yourself up for success.
- **Actively read the text.** For example, convert section headers into questions to help you identify the most important points. Take every chance to test yourself (Bjork & Bjork, 2011). Complete the end-of chapter questions. After each chapter, close your book and freely recall everything you can remember, then go back and check what you got and what you missed (Karpicke & Blunt, 2011). *Build your notes so you can use them to study later.*

## A Note About Studying

A helpful literature review classified study techniques as having high, moderate, or low utility for remembering and using information (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). If you don't already, consider using some of these research-based strategies to study for this and other courses:

- ✓ **Practice tests, including self-tests** (e.g., turn chapter headers and learning objectives into test questions)
- ✓ **Distributed practice** to spread out study over time (rather than cramming)
- ✓ **Elaborative interrogation** (explain why a concept is true)
- ✓ **Self-explanation** (explain how new information relates to what you already know)
- ✓ **Interleaved practice** that mixes around different material (rather than studying all of unit 1, then all of unit 2, sequentially, for example)

Researchers suggested *avoiding* the following low-utility techniques, in favour of spending time more effectively on the strategies listed above. Read the article for more tips.

- x Summarizing
- x Highlighting/underlining
- x Keyword mnemonics and mental imagery to link with verbal material
- x Re-reading the text after having read it

## Learning Tools to Investigate



We encourage you to take responsibility for your learning and check out what these resources might have to offer you.

**TIME MANAGEMENT** Search online for productivity and project management tools/apps (e.g., [trello.com](https://trello.com), [www.rescuetime.com/](https://www.rescuetime.com/), [todoist.com](https://todoist.com)). Try planning time to complete papers with [assignmentcalculator.library.ubc.ca](https://assignmentcalculator.library.ubc.ca).

**LEARNING COMMONS** is UBC's online hub for study and research support. This interactive website provides you with a wealth of academic resources, from tutoring and workshops to study groups and online technology tools. It also offers plenty of information on a variety of academic topics, and links to nearly all of the academic resources offered at UBC. Make the Learning Commons your first stop for all things academic! [learningcommons.ubc.ca](https://learningcommons.ubc.ca)

**PHYSICAL OR LEARNING DISABILITIES** Our teaching team and UBC generally is committed to equal opportunity in education for all students. If you have a disability that affects your classroom learning or test performance, please **contact Centre for Accessibility** in Brock Hall, <https://students.ubc.ca/about-student-services/centre-for-accessibility>. **If your disability requires extra exam time, please submit your form to Dr. Rawn as soon as possible to plan the 2-stage quizzes.**

## Expectations and Policies

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 and cultural 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 here (<https://senate.ubc.ca/policiesresources-support-student-success>)

### What We Expect from You

**ATTEND CLASS** Please come to every class, prepared to participate. Bring your iClicker device, a pen and paper (in addition to a laptop, if you choose to bring one; but consider Fried, 2008; Glass & Kang, 2018; Sana et al., 2013), and an open mind. *If you miss class*, you are responsible for obtaining notes and announcements. You will not be able to regain participation points for missed classes.

**PARTICIPATE** Success in this class depends on your active participation. Class time is designed to mix lecture-based explanations of course material with demonstrations, pair and small group discussions, large group discussions, writing, clicker questions, and feedback (see Michael, 2006 for a review of active learning's effectiveness). **We will ask you to do only those activities that we believe will help you learn.** Come ready.

**TREAT OTHERS RESPECTFULLY** You are expected to treat all classmates, teammates, instructor, and Teaching Fellows, with respect both in and out of the classroom, face-to-face and in writing (e.g., on email). This includes arriving to class on time and minimizing distractions for other students.

**ACT ETHICALLY** You are responsible for your own learning. Cheating of any kind will **not** be tolerated, including dishonest use of iClicker, and copying other's work. See the syllabus section on *Ethical Conduct* for more information.

**SUBMIT ASSIGNMENTS.** Convert your paper to a single .pdf file. Submit this .pdf on Canvas in the relevant Assignment by 11:59pm on the due date. **Please bring a hard copy of your Research Paper to the next class period.** 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, create an account, enter our course ID (Section 1: 21824370, Section 2: 21837101) and password (methods).** The content of both copies must match each other, with the exception of the identifying information.

**COMPLETE ASSIGNMENTS ON TIME** Late research papers will be accepted up to 7 days late, but 10% per day will be deducted if *any copy is late*. No work will be accepted after 7 days (including weekends). Plan ahead to avoid penalties. (Because of the flexible deadline for the Communication Assignment, none will be accepted after the final deadline.)

**WRITE ALL QUIZZES AND THE FINAL EXAM** If you must miss a quiz due to an extenuating circumstance like severe illness, you must submit the [Request For a Make-Up Test Form](#), plus relevant documentation if needed to Dr. Rawn (check the link for more details). *Unless it is an emergency*, this form must be submitted at least 7 days before the quiz date. In case of emergency, the form must be submitted within 3 days of missing the quiz (*or as soon as possible*). An alternative individual quiz will then be arranged. If you miss the deadline, or fail to follow through on rescheduling the quiz, you will receive a zero.

**BE PRESENT AT ALL LABS AND THE POSTER SESSION** If you are unable to attend any of those meetings, you must submit the [Request For Excused Absence Form](#), available on Canvas. This form must be submitted at least 10 days before the date of the event. *In case of emergency*, the form must be submitted within 3 days of missing the event (*or as soon as possible*). If your request is approved for missing Lab, you will still be responsible for communicating with and contributing to your team but you will not lose points. If your request 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. Then you will receive your group poster grade.



**SHARE CONSTRUCTIVE FEEDBACK** We invite you to share your thoughts and suggestions with us, particularly about things we are able to change, and to be open to **working together to make this course a positive experience for all of us.**

**USE ELECTRONICS IN THE CLASSROOM RESPONSIBLY** You may choose to use electronic devices to support your learning—not distract from it. Part of the room will be designated a “laptop-free zone” for people who wish to remain distraction-free during class.

### What You Can Expect from Us

**BE AVAILABLE** We are here to help you and your classmates in your choice to succeed. Visiting us in person is typically more effective than email for clearing up questions. If our office hours absolutely cannot work for you, respectfully email us a few time and day options to make an appointment. Because of our class size, there may be limits on the number of appointments possible.

**POST SOME MATERIALS ONLINE** PowerPoint slides and handouts will be available *after* class on our course Canvas site. Learning Objectives will be available there before class. Slides cannot be posted before class because they will undermine iClicker questions and reduce by ability to be responsive to what happens in class. Moreover, data shows that having notes in advance rather than after class does not influence performance (Babb & Ross, 2009).

**CONSIDER RE-GRADE REQUESTS** If you feel very strongly that a question on any quiz or your paper was graded unfairly, you may submit the [Re-Grade Request Form](#). To qualify, you must submit the form within 2 weeks of the date grades were posted on Canvas. I will consider your request carefully and will respond via email as soon as possible. Re-grading may result in an increase or decrease. That re-grade is final.

**TAKE PHOTOGRAPHS** To help document active learning, we will take some photographs throughout the term. Please see me within the first two weeks if you have serious concerns about this.

**ARRANGE FOR AND PROVIDE FEEDBACK** Your peers will be an important source of feedback throughout this course. In addition, we will attempt to provide you with feedback on learning appraisals as promptly and as with as much detail as possible, given the size of our class. See us in person for additional feedback.

**ACT RESPECTFULLY & ETHICALLY** At all times, we aim to treat each of you with respect, and to make all course decisions with the highest ethical standards in mind. If you feel you are being treated unfairly or disrespected by us or a classmate, we invite you to talk with us so we can sort out the issue together. To be clear: such a discussion would not impact your grade.

### Psychology Department Grading Policies

*To meet department policy, the typical student demonstrating adequate performance on learning appraisals will earn around 67-71% in this course. Read on for details provided by the department.*

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 300-level class is 70 for a good class, 68 for an average class, and 66 for a weak class, with a standard deviation of 13). The corresponding figures for 100- and 200-level Psychology courses are 67, 65, and 63, with a standard deviation of 14. *Psyc 217 is the one exception to this. Our mean may slightly exceed this value (up to 71%, same standard deviation).* **Scaling** may be used in order to comply with these norms; grades may be scaled up or down as necessary by the professor or department. Grades are not official until they appear on a student’s academic record. You will receive both a percent and a letter grade for this course. At UBC, they convert according to the following key:

A+	90-100%	C+	64-67%
A	85-89%	C	60-63%
A-	80-84%	C-	55-59%
B+	76-79%	D	50-54%
B	72-75%	F	0-49%
B-	68-71%		



## Ethical Conduct: Practices and Policies

**Don't Cheat. Don't Plagiarize. It's Not Worth It.**

**Read on for Key Definitions, Consequences, and How to Act Ethically**

The consequences for unethical conduct are more severe than you may think: you may fail the assignment or test, you may fail the course, you may be expelled from University, and unable to attend any other post-secondary institution in the future. Think about the long-term implications of that outcome in your life.

### Psychology Department's Official Statement on Academic Misconduct

Cheating, plagiarism, and other forms of academic misconduct are very serious concerns of the University, and the Department of Psychology has taken steps to alleviate them. In the first place, the Department has implemented software that can reliably detect cheating on multiple-choice exams by analyzing the patterns of students' responses. In addition, the Department subscribes to *TurnItIn* — a service designed to detect and deter plagiarism. All materials (term papers, lab reports, etc.) that students submit for grading will be compared to over 5 billion pages of content located on the Internet or in TurnItIn's own proprietary databases. The results of these comparisons are compiled into customized "Originality Reports" containing several, sensitive measures of originality that flag instances of plagiarism; instructors receive copies of these reports for every student in their classes.

During exams, the instructor and invigilators reserve the right to move students in their seating arrangement with no explanation provided.

In all cases of suspected academic misconduct, the parties involved will be pursued to the fullest extent dictated by the guidelines of the University. Strong evidence of cheating or plagiarism may result in a zero credit for the work in question. According to the University Act (section 61), the President of UBC has the right to impose harsher penalties including (but not limited to) a failing grade for the course, suspension from the University, cancellation of scholarships, or a notation added to a student's transcript. For details on pertinent University policies and procedures, please see Chapter 5 in the UBC Calendar (<http://students.ubc.ca/calendar>).

*If you ever have any questions about what sources to use or how to cite them, please see your Instructor or Teaching Fellow **before** handing in your assignment.*

### Why is Academic Misconduct Treated So Harshly?

Some people don't feel like cheating on a test or taking a sentence or two from someone else's paper without citing it is a big deal. Here's a bit of insight into why we care so much. In the academic community—a community of which you are now a part—**we deal in ideas**. That's our currency, our way of advancing knowledge. By representing others' ideas in an honest way, we are (1) respecting the rules of this academic community, and (2) showcasing how our own novel ideas are distinct from but relate to their ideas. APA style gives us a formal way to indicate where our ideas end and where others' begin. **Welcome to the academic community. You are expected to act honestly and ethically, just like the rest of us.**

### Participating in the Academic Community Ethically

What can you do to ensure you are acting ethically? First, recognize that all graded work in this course, unless otherwise specified, is to be **original work done independently by individuals**. **Groupwork is to be original work created collaboratively by the group.**

**VISIT LEARNING COMMONS' GUIDE TO ACADEMIC INTEGRITY** UBC offers an online guide to preventing unintentional plagiarism and organizing your writing. Visit <http://learningcommons.ubc.ca/resource-guides/avoiding-plagiarism/>

**USE THE LIBRARY'S RESOURCES**, including any of the indexes and databases listed under Indexes and Databases, Subject Resources, OneSearch or Metasearch on the Library's website at <http://www.library.ubc.ca>. (Not sure which index to use? Click HELP on the library homepage at [www.library.ubc.ca](http://www.library.ubc.ca) or try Subject Resources.) When instructed to do so, you may use search engines (e.g., Google, Bing) or GoogleScholar to find articles for assignments in this course.

**BE CAREFUL AND CRITICAL OF WHAT YOU READ AND CHOOSE TO CITE.** Reference all material using APA style; if you cannot find a proper reference, question whether that source is appropriate to use. **Do not** copy and paste text from other sources, even in a draft, as you might unintentionally misrepresent those words as your own in a later draft (which would still qualify as plagiarism).

## Supplemental Reading List

### Ethics and Values Units

Neuroskeptic. (2012). The nine circles of scientific hell. *Perspectives on Psychological Science*, 7, 643-644. doi:10.1177/1745691612459519

Madigan, R., Johnson, S., & Linton, P. (1995). The language of psychology: APA style as epistemology. *American Psychologist*, 50, 428-436. doi: 10.1037/0003-066X.50.6.428

### Replication Unit (Read in this order. Subject to change. Any changes will be announced in class and on Canvas.)

Pashler, H., & Wagenmakers, E.-J. (2012). Editors' introduction to the special section on replicability in psychological science: A crisis of confidence? *Perspectives on Psychological Science*, 7, 528-530. doi:10.1177/1745691612465253

Hamlin, J. K. (2017). Is psychology moving in the right direction? An analysis of the evidentiary value movement. *Perspectives on Psychological Science*, 12, 690-693.

Asendorpf, J. B., Conner, M., de Fruyt, F., de Houwer, J., Denissen, J. J. A., Fiedler, K., et al. (2013). Recommendations for increasing replicability in psychology. *European Journal of Personality*, 27, 108-119. doi: 10.1002/per.1919

Kidwell, M. C., Lazarevic, L. B., Baranski, E., Hardwicke, T. E., Piechowski, S., Falkenberg, L.-S., ... & Nosek, B. A. (2016). Badges to acknowledge open practices: A simple, low-cost, effective method for increasing transparency. *PLoS Biology*, 14(5): e1002456. doi: 10.1371/journal.pbio.1002456

### Optional

Bartlett, T. (2013, January 30). Power of suggestion. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Power-of-Suggestion/136907/>

Dominus, S. (2017, October 18). When the revolution came for Amy Cuddy. *The New York Times Magazine*. Retrieved from <https://www.nytimes.com/2017/10/18/magazine/when-the-revolution-came-for-amy-cuddy.html>

Ledgerwood, A. (2014). Introduction to the special section on advancing our methods and practices. *Perspectives on Psychological Science*, 9, 275-277. doi: 10.1177/1745691614529448

Nosek, B. A., Spies, J. R., & Motyl, M. (2012). Scientific utopia: II. Restructuring incentives and practices to promote truth over publishability. *Perspectives on Psychological Science*, 7, 615-631. doi: 10.1177/1745691612459058

Washburn, A. N., Hanson, B. E., Motyl, M., Skitka, L. J., Yantis, C., Wong, K. M., et al. (2018). Why do some psychology researchers resist adopting proposed reforms to research practices? A description of researchers' rationales. *Advances in Methods and Practices in Psychological Science*, 1, 166-173. doi: 10.1177/2515245918757427

## References

Throughout this syllabus I have cited many journal articles. I include them here (1) to model responsible, APA style citation and referencing practices we will be using in this course, and (2) to show you some of the many ways I use research to guide the decisions I make in my teaching practice and course design. These are **not** required reading, but you may find some of them interesting (e.g., Dunlosky et al., 2013).

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major 2.0*. Washington, DC: Author. Retrieved from <http://www.apa.org/ed/precollege/about/psymajor-guidelines.pdf>

Babb, K. A., & Ross, C. (2009). The timing of online lecture slide availability and its effect on attendance, participation, and exam performance. *Computers & Education*, 52, 868-881. doi: 10.1016/j.compedu.2008.12.009

Ceynar Rosell, M., Beck, D. M., Luther, K. E., Goedert, K. M., Shore, W. L., & Anderson, D. D. (2006). The pedagogical value of experimental participation paired with course content. *Teaching of Psychology*, 32, 95-99. doi: 10.1207/s15328023top3202\_3

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, 14, 4-58. doi: 10.1177/1529100612453266

Fink, L. D. (2003). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey-Bass.

Fried, C. B. (2008). In-class laptop use and its effects on student learning. *Computers & Education*, 50, 906-914. doi: 10.1016/j.compedu.2006.09.006

Gilley, B. H., & Clarkston, B. (2014). Collaborative testing: Evidence of learning in a controlled in-class study of undergraduate students. *Journal of College Science Teaching*, 43, 83-91.

Glass, A. L., & Kang, M. (2018). Dividing attention in the classroom reduces exam performance. *Educational Psychology*, doi: 10.1080/01443410.2018.1489046

Kliegal, R., & Bates, D. (2011). International collaboration in psychology is on the rise. *Scientometrics*, 87, 149-158. doi: 10.1007/s11192-010-0299-0

Michael, J. (2006). Where's the evidence that active learning works? *Advances in Physiology Education*, 30, 159-167. doi: 10.1152/advan.00053.2006

Rawn, C. D., Ives, J., & Gilley, B. (2019). Two-Stage exams increase learning and laughter on exam day in classes of any size. In J. Golding, C. D. Rawn, & K. Kern (Eds.). *Strategies for Effectively Teaching Large Classes in Higher Education*. San Diego, CA: Cognella Academic Publishing.

Roediger, H. L., III, & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, 17, 249-255. doi: 10.1111/j.1467-9280.2006.01693.x

Sana, F., Weston, T., & Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. *Computers & Education*, 62, 24-31. doi: 10.1016/j.compedu.2012.10.003

### Our Class Schedule

This plan is subject to change. Changes will be announced in class and posted on the Canvas course website. *Together in class we will explore most of the key concepts in the assigned readings. Please supplement your understanding by reading the corresponding material in the assigned readings, and by generating examples of each idea (rather than simply memorizing material). Use in-class learning objectives to prioritize what to focus on in a given chapter or reading. Past students have reported that the course starts relatively slowly, then builds in complexity and time needed. Don't fall behind!*

Wk	Dates	Monday	Wednesday	Friday
1	Sept 4, 6	No classes: Labour Day	Welcome! Course Overview, Science Basics <i>Reading: Syllabus</i>	Ch 1. Scientific Understanding of Behaviour 📌 Register your iClicker
2	Sept 9, 11, 13	Ch 1 Scientific Understanding Ch 2. Where to Start	Ch 2. Where to Start	Ch 2. Where to Start
3	Sept 16, 18, 20	Ch 4. Research Design Fundamentals	Ch 4. Research Design Fundamentals	Ch 9. Conducting Studies
4	Sept 23, 25, 27	Ch 9. Conducting Studies	📌 QUIZ #1 (Ch 1, 2, 4, 9, all classes)	📌 LAB #1: Research Design <i>To know how to prepare, read Cuttler Ch 1</i>
5	Sept 30, Oct 2, 4	Ch 3. Ethical Research	Ch 3. Ethical Research Neuroskeptic, 2012	Ch 3. Ethical Research Ch 7. Questionnaire Basics (pp. 135-143 only) 📌 Communicating Psychological Research Assignment ( <i>Recommended due date</i> )
6	Oct 7, 9, 11	Ch 5. Measurement Concepts	Ch 5. Measurement <i>Begin</i> Ch 8. Repeated Measures	📌 LAB #2: Proposal Presentation <i>To know how to prepare, read Cuttler Ch 2</i> 📌 TCPS2 certificate due at start of lab 📌 iPeer peer evaluations
7	Oct 16, 18	No classes: <i>Thanksgiving Day</i>	Ch 8. Repeated Measures Designs (pp. 168 to end)	📌 QUIZ #2 (Ch 3, 5, sections of 7 and 8, special readings, classes since Test 1)
8	Oct 21, 23, 25	Ch 10. Complex Experimental Designs	Ch 10. Complex Experimental Designs <i>Values and Careers</i> Madigan et al., 1995	📌 LAB #3: Data Collection <i>To know how to prepare, read Cuttler Ch 3</i>
9	Oct 28, 30, Nov 1	<i>Values and Careers, cont'd</i> Ch 6. Observation Methods <b>5-6:30pm Optional Extra Data Collection SWNG Room TBD</b>	Ch 11. Research Designs for Special Circumstances	📌 LAB #4: Data Summary <i>To know how to prepare, read Cuttler Ch 4</i>
10	Nov 4, 6, 8	Ch 11. Research Designs for Special Circumstances 📌 Communicating Psychological Research Assignment ( <i>Final due date</i> )	Ch 12. Describing Variables (pp. 246-260 only)	Ch 12. Describing Variables (pp. 246-260 only)
11	Nov 13, 15	No classes: <i>Remembrance Day</i>	📌 QUIZ #3 (Ch 6, 10, 11, 12 up to pp. 260, classes since Test 2)	📌 LAB #5: Writing an APA Style Report <i>To know how to prepare, read Cuttler Ch 5</i>
12	Nov 18, 20, 22	Brief introduction to Inferential Statistics (Ch. 13 pp. 270-273, 292-295)	Ch. 14 Generalizing Results	Publication and Replication Pashler et al. (2012) Hamlin (2017) [📌 Student Evaluations of Teaching]
13	Nov 25, 27, 29	Publication and Replication Asendorpf et al. (2013) 📌 APA-STYLE REPORT DUE ONLINE	Publication and Replication Kidwell et al. (2016) 📌 APA-STYLE REPORT DUE IN CLASS	Synthesis 📌 POSTER SESSION, 5-6:30pm, LSI West Atrium

📌 iPeer peer evaluations due Monday December 2, 2019

The Final Exam will be booked by the registrar during the period December 3 to 18, 2019, including Saturdays. Do not book travel during this time until you know when your exams are. It will emphasize material from readings and classes since Quiz 3, but will include class and reading material from the entire course.

## Acknowledgements and Copyright

This course is held on the traditional, ancestral, and unceded territory of the [Musqueam people](#). The original design of this course and syllabus were critically informed by insights from a similar course designed by Dr. A. Carle (U. North Florida), whose peer-reviewed syllabus is available from the *Society for the Teaching of Psychology's Office of Teaching Resources in Psychology* website, as well as syllabi from Dr. A. Perrino (UBC) and Dr. C. Cuttler (UBC). Annual revisions to this course and syllabus have been influenced by feedback from students in all my PSYC 217 Sections since Fall 2008, my Teaching Fellows and fellow instructors of Psyc 217, American Psychological Association (2007/2013) and Fink (2003).



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Recommended APA-style citation:

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Retrieved from <http://blogs.ubc.ca/catherinerawn>

# 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](#), 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 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](http://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 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](#)) 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

<b>1. ABSTRACT AND INTRODUCTION</b>
- 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
<b>2. METHOD</b>
- 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
<b>3. RESULTS AND FIGURE</b>
- 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
<b>4. DISCUSSION</b>
- 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)
<b>5. WRITING STYLE AND APA FORMAT</b>
- 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>

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> 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!