

PSY 3001V: Honors Introduction to Research Methods**Spring 2023 Course Syllabus****Monday and Wednesday, 1:25-3:05pm – Campbell Hall 150 – 4 Credits**

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Course Description

PSY 3001V is an introduction to the basic concepts and procedures used to evaluate and conduct research in psychology. This course will emphasize all aspects of the research process, including conceptualization, design, analysis, interpretation, and dissemination. The course is situated within the ongoing reform movement throughout science, but especially psychology, and will heavily emphasize how to critically evaluate psychological evidence.

This course is a combination lecture/laboratory course, and students are expected to be active participants in both the lectures and laboratory activities. PSY 3001V is a writing intensive (WI) course and satisfies a Liberal Education social science requirement. Accordingly, students will complete multiple writing assignments throughout the semester, each involving a different style of writing and pertaining to different aspects of the research process. This course meets the writing intensive requirement stating that at least 33% of the student's final grade must be based upon student writing. *Prerequisites:* PSY 1001 (Intro Psychology), PSY 3801 (Intro to Psychological Measurement and Data Analysis), honors student status, and a declared psychology major.

Course Goals and Objectives

The goal of this course is for students to understand the basics of research design and analysis in contemporary psychological research. Students will learn how to identify, define, and solve problems related research methods; locate and critically evaluate scientific evidence; master a body of knowledge and mode of inquiry; and to communicate effectively. Following completion of this course, students should feel confident in their ability to read, understand, and critically evaluate psychological research.

Format

This course consists of lecture, discussion, and hands-on activities via the lab sections and course assignments. The beginning portion of the course will focus heavily on lecture and discussion to get students acquainted with foundational concepts. Thereafter, in most weeks the Monday meetings will consist of lecture/discussion and the Wednesday meetings will be lab sessions. Lab sessions will focus on learning to use R to analyze data pertaining to the topic for the week.

Time Requirement

The University Senate policy on workload is as follows: “For undergraduate courses, one credit is defined as equivalent to an average of three hours of learning effort per week (over a full semester) necessary for an average student to achieve an average grade in the course. For example, a student taking a three credit course that meets for three hours a week should expect to spend an additional six hours a week on coursework outside the classroom.” This is a 4-credit course that meets nearly 4 hours per week, which means that an additional 8 hours of work per week will be needed for the average student to achieve an average grade. Of course, there will be quite a lot of variability around this average!

Required Readings

There is no textbook for this course. All course readings will be available for download on the course Canvas site: <https://canvas.umn.edu/courses/352724>. In addition to these readings, you will be required to seek out additional resources as necessary to complete your course assignments (see below).

Non-required Readings and Resources:

Most of you are interested in a career related to psychology, whether it is research- or practice-based. No matter your career goals, it is beneficial to be engaged in the discipline beyond your courses, as some of the best and most long-lasting learning occurs in these spaces. Below is a list of suggestions for how to do so. These are completely optional, and I certainly would not expect you to do all of these things. Consider choosing one or two, and then see where that takes you.

Textbook – We will be reading some sections of the following open-access textbook, but certainly not all. It is a nice resource if you want further knowledge on particular topics. The book is available via the hyperlink below and the full PDF is posted on the course Canvas page.

Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). [*Research methods in psychology \(2nd Canadian ed.\)*](#). Vancouver, BC: Author.

Social Media – There is constant discussion of relevant issues in social media spaces, primarily on Facebook and Twitter. If you are on Facebook, there are two methods groups you should consider joining: Psychological Methods Discussion Group (largely unmoderated) and PsychMAP (moderated for tone and respect). I have not been on Facebook for several years so do not know anything about the current quality of the groups, but when I was I found them to be very helpful. If you are active on Twitter, I suggest starting by following a few key figures in the current methodological reform movement and expand your network from there. I am happy to provide some suggestions for people to follow.

Blogs – Traditional academic journals move at a very slow pace, so research blogs have increased in prevalence and influence. A few good blogs to follow include, [BishopBlog](#), [Science Fictions](#), [Data Colada](#), [The 100% CI](#), and [Absolutely Maybe](#).

Podcasts - In recent years, podcasts have emerged as a major source of discussion about current and perennial issues in psychology. I am not much of a podcaster, so my advice here is limited, but here are a few you might consider checking out:

[The Juice and the Squeeze](#) - A zesty podcast by two academics about where, how, and why we focus our efforts

[The Black Goat](#) - Three psychologists talk about doing science.

[Intersectionality Matters](#) - The podcast that brings intersectionality to life

[Marginally Significant](#) - Four psychologists from a comprehensive university provide a unique perspective on life in academia, issues with scientific research, and current events.

[Within and Between](#) - A podcast about the methods and metascience of developmental science

[Quantitude](#) - A podcast dedicated to all things quantitative, ranging from the relevant to the highly irrelevant.

[Everything Hertz](#) - Methodology, scientific life, and bad language.

[\(Re\)Searching Diversity](#) – A podcast to increase visibility of inspiring social scientists and of excellent research on ethnic, cultural, and migration-related diversity

Learning R – Using R for data analysis is a required component of this course. If you are not familiar with R or need to brush up on your skills, I have created a tutorial, [Getting Started with R When You Know Absolutely Nothing](#). I suggest working through this tutorial, or some other one of your choice, as needed.

Improving your Statistical Inferences Coursera course – This is an excellent free, online course taught by Daniël Lakens of Eindhoven University of Technology (Netherlands). It is very reasonably paced and you will learn a great deal, no matter your current level of understanding.

<https://www.coursera.org/learn/statistical-inferences>

Paul Meehl Philosophical Psychology Video Series – Paul Meehl is widely considered to be the most eminent professor in the 100+ year history of the UMN Psychology Department, and is considered by some to be the most important and influential thinker in the history of the field. I strongly recommend that you watch or listen to the Philosophical Psychology course taught by Meehl: <https://meehl.umn.edu/video>

Technology Requirement

To participate in this course you will need access to a well-functioning computer (desktop or laptop) and reliable internet access. You will want/need to bring a laptop to the lab sessions where we are working with R. Either Mac or PC machines will work fine. A Chromebook or similar will work, but is not ideal. You do not need to purchase any specialty software, as all software and tools that we will use are open-access.

To access campus-based resources (e.g. library services) you will need to download and install a Virtual Private Network (VPN). [Instructions on how to do so are here.](#) Please do this right away for your primary machine. If you require assistance with technology issues you should contact me as soon as possible.

Course Requirements

1. **Conceptual Genealogy Paper (10 points)**. You will select a psychological construct of interest to you (e.g., working memory, identity, post-traumatic growth) and conduct a historical analysis of the construct, focusing on how it has been conceptualized and measured over time. You will then write a brief (~1000 words) paper describing what you discovered. [Details of this assignment are available here](#). We will discuss the assignment in more detail on the first day, Jan 18. This assignment will be due on Feb 8.
2. **Ethics Paper (10 points)**. You will select a case of your choice related to ethics in psychological research (some examples will be provided) and write a brief summary and analysis of the case (~1000 words), linking it to the APA Ethical Guidelines and your completion of the CITI research ethics training. [Details of this assignment are available here](#). We will discuss the assignment in more detail on Jan 30. This assignment will be due on Mar 1.
3. **Simulation Paper (20 points)**. You will locate a published psychology study that tests a hypothesis about a difference between two groups and uses an independent samples t-test. That published test will serve as the foundation for a simulation-based replication study, conducted in R, in which you will examine the robustness of that finding under different conditions and then prepare a brief paper (~750 words) describing what you discovered. [Details of this assignment are available here](#). We will discuss the assignment in more detail on Mar 13. This assignment will be due on Mar 29.
4. **Policy Paper and Technical Report (40 points)**. You will select a topic of your choice related to psychology, locate the empirical evidence related to that topic, critically evaluate that evidence, and then write a brief policy paper (~500 words) that provides recommendations based on the evidence, and a longer APA-style technical report that details the background, method, results, and interpretations (~2000 words). [Details of this assignment are available here](#). We will discuss the assignment in more detail on March 29. This assignment will be due on May 1.
5. **R Labs (15 points)**. There will be six assignments in which you will need to conduct some analyses in R, based on material discussed during lab sessions. For each assignment, you will submit an annotated script file. Only five of the six assignments will be graded (3 points each), so you can choose to skip one. [Details about the R Labs are available here](#). More information about each assignment will be provided during the lab sessions.
6. **Attendance (5 points)**. Students are expected to attend class on a regular basis. If you anticipate missing class for an excusable reason (e.g., medical reason, military service, religious observance; see <http://policy.umn.edu/education/makeupwork>) please inform the instructor beforehand. In addition, you get two “freebies” where you can miss class for whatever reason without penalty. After those, you will lose 1 point for each unexcused class period missed. There will not be a remote attendance option available.

Grading

The relative weight of each course component is as follows:

Conceptual Genealogy Paper	10 points
Ethics Paper	10 points
Simulation Paper	20 points
Policy Paper	40 points
R Labs	15 points
Attendance	5 points

Total **100 points**

The standard University grading system will be used:

93-100 = A	77-79 = C+
90-92 = A-	73-76 = C
87-89 = B+	70-72 = C-
83-86 = B	60-69 = D
80-82 = B-	59- = F

You must achieve a grade of 60 or higher to receive a passing grade. Students registered S/N must complete all course requirements and receive a final course grade of 70 or higher to obtain an S grade.

Extra Credit

You can earn up to 3 extra credit points in this class. The primary way to earn extra credit is participating in the Research Experience Program (REP) and submitting a brief (~250 words) description of what you did. However, you can talk to me about alternatives to REP if you prefer not to participate or have limited REP opportunities because of availability, time, etc. [More information about how to participate in REP is available here.](#)

Late Work and Make-ups

Although late work will be accepted, it is generally expected that all work required for the course will be submitted on time. Late work will be accepted at a penalty of 10% of the assignment grade per business day. Late work is defined as any assignment not turned in at the **beginning of the class meeting** in which it is due. If you have circumstances that require you to submit a late assignment, please discuss this with me **prior to the due date** and we will work it out. Exceptions to this policy will be made when students have a legitimate excuse (see <http://policy.umn.edu/education/makeupwork>).

Additional Writing Support

This course involves an extensive amount of writing. Whereas I will do what I can to support you, you may also need to consult some of the campus writing resources that are available:

The UMN Libraries system offers peer research consultations to assist in developing and writing research papers. This resource would be especially helpful in the early stages of the course research projects. <https://www.lib.umn.edu/services/prc>

The Center for Writing offers student writing support and they can provide feedback on writing at any stage in the process. They also have resources online. <http://writing.umn.edu/sws/>

The Multicultural Center for Academic Excellence offers writing support in-person on a walk-in basis and they also offer online video appointments. You must reserve a spot for online tutoring through their website. <http://mcae.umn.edu/academic-support/academic-support>

Student Conduct

Please be sure to review the following policies on student conduct:

[Scholastic Dishonesty](#)

[Teaching and Learning: Student Responsibilities](#)

[Sexual Harassment](#)

[Equity, Diversity, Equal Opportunity, and Affirmative Action](#)

Communication Policy

Email is my preferred method of communication (moin@umn.edu). My email policy for students is as follows: I guarantee I will respond to your message within 24 hours of receipt. If I have not returned your email within 24 hours it means that I did not receive it and you are expected to resend your message. This policy also means that I may not respond until 24 hours after receiving the message. Thus, if you need an immediate response to a question, you must email me at least 24 hours before you need the response (e.g., don't email me a question at 11:30pm about an assignment due the next day).

Students with Disabilities

The University of Minnesota views disability as an important aspect of diversity, and is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you have, a disability in any area such as, mental health, attention, learning, chronic health, sensory, or physical, please contact the DRC office on your campus (UM Twin Cities - 612.626.1333) to arrange a confidential discussion regarding

equitable access and reasonable accommodations. If you are registered with the DRC and have a disability accommodation letter dated for this semester or this year, please contact your instructor early in the semester to review how the accommodations will be applied in the course. For more information, please see the DRC website, <https://diversity.umn.edu/disability/>.

Mental Health and Stress Management

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

A Note on Openness and Respect

It goes without saying that students must respect the views of other members of the class. Healthy debate is expected and encouraged, but must be conducted in a scholarly and respectful manner.

Schedule and Readings

All required readings for the week must be completed prior to the class meeting. *Readings are listed in suggested reading order.* Readings listed under the header of “for reference” are optional, all other readings are mandatory. The instructor reserves the right to make any necessary changes to the schedule.

Week 1 – Introduction

Wednesday, January 18: Welcome! What is Research?

Pullum, G. (1991). [*The great Eskimo vocabulary hoax and other irreverent essays on the study of language.*](#) University of Chicago Press. [Chapter 19, available on Canvas; Be sure to read the note on the use of the word “Eskimo”).

Discuss Conceptual Genealogy Paper – Due Feb 8

Week 2 – The Contemporary Context of Psychological Research

Monday, January 23: The Current State of Psychological Science (We have a lot of Problems)

Gelman, A. (2016). What has happened down here is the winds have changed. *Statistical Modeling, Causal Inference, and Social Science*.

<https://statmodeling.stat.columbia.edu/2016/09/21/what-has-happened-down-here-is-the-winds-have-changed/>

Watch: [Scientific Studies: Last Week Tonight with John Oliver](#) (20 mins; read the first comment...)

For reference:

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, 349(6251). <https://doi.org/10.1126/science.aac4716>

Errington, T. M., Denis, A., Perfito, N., Iorns, E., & Nosek, B. A. (2021). Reproducibility in Cancer Biology: Challenges for assessing replicability in preclinical cancer biology. *Elife*, 10, e67995. <https://doi.org/10.7554/eLife.67995>

Spellman, B. A. (2015). A short (personal) future history of revolution 2.0. *Perspectives on Psychological Science*, 10(6), 886-899. [10.1177/1745691615609918](https://doi.org/10.1177/1745691615609918)

Wednesday, January 25: The Open Science Movement

Munafò, M. R., Nosek, B. A., Bishop, D. V. M., Button, K. S., Chambers, C. D., Percie du Sert, N., Simonsohn, U., Wagenmakers, E.-J., Ware, J. J., & Ioannidis, J. P. A. (2017). A manifesto for reproducible science. *Nature Human Behaviour*, 1, 1–9.

<https://doi.org/10.1038/s41562-016-0021>

For reference:

Crüwell, S., van Doorn, J., Etz, A., Makel, M. C., Moshontz, H., Niebaum, J. C., Orben, A., Parsons, S., & Schulte-Mecklenbeck, M. (2019). Seven easy steps to open science. *Zeitschrift Für Psychologie*, 227(4), 237–248. <https://doi.org/10.1027/2151-2604/a000387>

Kathawalla, U. K., Silverstein, P., & Syed, M. (2021). Easing into open science: A guide for graduate students and their advisors. *Collabra: Psychology*, 7(1), 1-14.

<https://doi.org/10.1525/collabra.18684>

Spellman, B. A., Gilbert, E. A., & Corker, K. S. (2018). Open Science. In *Stevens' Handbook of Experimental Psychology and Cognitive Neuroscience* (pp. 1–47). American Cancer Society. <https://doi.org/10.1002/9781119170174.epcn519>

Vazire, S. (2017). Quality Uncertainty Erodes Trust in Science. *Collabra: Psychology*, 3(1), 1. <https://doi.org/10.1525/collabra.74>

Week 3 – Ethics in Psychology Research

Monday, January 30: Ethics I: Overview

Le Texier, T. (2019). Debunking the Stanford Prison Experiment. *American Psychologist*, 74(7), 823-839. <http://dx.doi.org/10.1037/amp0000401>

For reference:

American Psychological Association (2017). *Ethical principles of psychologists and code of conduct*. American Psychological Association. <https://www.apa.org/ethics/code/ethics-code-2017.pdf>

Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). *Research methods in psychology (2nd Canadian ed.)*. Vancouver, BC: Author. [Chapter 3: Research Ethics]

Discuss Ethics Paper – Due Mar 1

Wednesday, February 1: Ethics II: Responsible Conduct with Marginalized Communities

Hernández, M. G., Nguyen, J., Casanova, S., Suárez-Orozco, C., & Saetermoe, C. L. (2013). Doing no harm and getting it right: Guidelines for ethical research with immigrant communities. *New Directions for Child and Adolescent Development*, 141, 43-60. <https://doi.org/10.1002/cad.20042>

Week 4 – The Building Blocks of Psychological Science I

Monday, February 6: Philosophy of Science and Research Paradigms

Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology*, 52(2), 126–136. <https://doi.org/10.1037/0022-0167.52.2.126>

Wednesday, February 8: Theories and Hypotheses

Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). [*Research methods in psychology \(2nd Canadian ed.\)*](#). Vancouver, BC: Author. Chapter 4: Theory in Psychology:

Conceptual Genealogy Paper Due

Week 5 – The Building Blocks of Psychological Science II

Monday, February 13: Questions, Claims, and Methods

Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). [*Research methods in psychology \(2nd Canadian ed.\)*](#). Vancouver, BC: Author. Chapter 2: Getting Started in Research

UPDATE: Wednesday, February 15: Writing and Reading: Introduction to APA Style

Gernsbacher, M. A. (2018). Writing empirical articles: Transparency, reproducibility, clarity, and memorability. *Advances in Methods and Practices in Psychological Science*, 1(3), 403-414.
<https://doi.org/10.1177/2515245918754485>

For reference:

Purdue Online Writing Lab. (n.d.). APA Style (7th Edition). Purdue Online Writing Lab.
https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html

Week 6 – Research is Done By People

Monday, February 20: Researcher Subjectivity

Silberzahn, R., Uhlmann, E. L., Martin, D. P., Anselmi, P., Aust, F., Awtrey, E., Bahník, Š., Bai, F., Bannard, C., Bonnier, E., Carlsson, R., Cheung, F., Christensen, G., Clay, R., Craig, M. A., Dalla Rosa, A., Dam, L., Evans, M. H., Flores Cervantes, I., ... Nosek, B. A. (2018). Many analysts, one data set: Making transparent how variations in analytic choices affect results. *Advances in Methods and Practices in Psychological Science*, 1(3), 337–356.
<https://doi.org/10.1177/2515245917747646>

UPDATE: Wednesday, February 22: NO CLASS

Week 7 – Who is Included in Psychology Research?

Monday, February 27: Sampling, Representation, and Diversity

Hartmann, W. E., Kim, E. S., Kim, J. H. J., Nguyen, T. U., Wendt, D. C., Nagata, D. K., & Gone, J. P. (2013). In search of cultural diversity, revisited: Recent publication trends in cross-cultural and ethnic minority psychology. *Review of General Psychology*, 17(3), 243–254.
<https://doi.org/10.1037/a0032260>

For reference:

Hanel, P. H., & Vione, K. C. (2016). Do student samples provide an accurate estimate of the general public? *PLoS ONE*, 11(12), e0168354. <https://doi.org/10.1371/journal.pone.0168354>

Landers, R. N., & Behrend, T. S. (2015). An inconvenient truth: Arbitrary distinctions between organizational, Mechanical Turk, and other convenience samples. *Industrial and Organizational Psychology*, 8(2), 142-164. <https://doi.org/10.1017/iop.2015.13>

Wednesday, March 1: R Lab 1: Sample Composition

Ethics Paper Due

Week 8 – SPRING BREAK, No class March 6th or 8th

Week 9 – Can We Believe What We Read?

Monday, March 13: Evaluating Evidence

Ritchie, S. (2020). Appendix: How to read a scientific paper. *Science Fictions* (pp. 247-257). Metropolitan Books.

Rohrer, J. M. (2018). The uncanny mountain: P-values between .01 and .10 are still a problem. *The 100% CI*.
<http://www.the100.ci/2018/02/15/the-uncanny-mountain-p-values-between-01-and-10-are-still-a-problem/>

Discuss Simulation Paper – Due Mar 29

Wednesday, March 15: R Lab 2 Evaluating Evidence

Week 10 – Can We Believe What We See?

Monday, March 20: Visualization

Lin, C., & Thornton, M. A. (2021). Fooled by beautiful data: Visualization aesthetics bias trust in science, news, and social media. *PsyArXiv*. <https://doi.org/10.31234/osf.io/dnr9s>

For reference:

Nordmann, E., McAleer, P., Toivo, W., Paterson, H., & DeBruine, L. M. (2022). Data visualisation using R, for researchers who don't use R. *Advances in Methods and Practices in Psychological Science*, 5(2), 1-36. <https://doi.org/10.1177/25152459221074654>

Wednesday, March 22: R Lab 3: Visualization

Week 11 – Making Sense of the Unobservable

Monday, March 27: Measurement I: Overview

Forestier, C., de Chanaleilles, M., Boisgontier, M. P., & Chalabaev, A. (2022). From ego depletion to self-control fatigue: A review of criticisms along with new perspectives for the investigation and replication of a multicomponent phenomenon. *Motivation Science*, 8(1), 19-32. <https://doi.org/10.1037/mot0000262>

For reference:

Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). [*Research methods in psychology \(2nd Canadian ed.\)*](#). Vancouver, BC: Author. Chapter 5: Psychological Measurement

Watson, D. (2022). Personality assessment. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology*. Champaign, IL: DEF publishers. Retrieved from <http://noba.to/eac2pyv7>

Wednesday, March 29: R Lab 4: Measurement I

****Simulation Paper Due****

Discuss Policy Paper and Technical Report - Due May 1

Week 12 – Does that Measure What We Think It Does?

Monday, April 3: Measurement II: Validity

****Simulation Paper Due****

Vazire, S., Schiavone, S. R., & Bottesini, J. G. (2022). Credibility beyond replicability: Improving the four validities in psychological science. *Current Directions in Psychological Science*, 31(2), 162-168. <https://doi.org/10.1177/09637214211067779>

Wednesday, April 5: R Lab 5: Measurement II

Week 13 - Does that Measure What We Think It Does, *Consistently*?

Monday, April 10: Measurement III: Reliability

Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). [*Research methods in psychology \(2nd Canadian ed.\)*](#). Vancouver, BC: Author. Chapter 5: Psychological Measurement, section on Reliability and Validity of Measurement, subsection on Reliability (pp. 96-99)

Wednesday, April 12: R Lab 6: Measurement III

Week 14 – Taking a Step Back

Monday, April 17: Day to Breathe, Take Stock, and Catch-up

Wednesday, April 19: NO CLASS

Week 15 – How Does This All Work?

Monday, April 24: Publishing Psychological Research

Fried, E. I. (2018). Academia: Trapped in the upside down of publishing. *Eiko Fried Blog*. <https://eiko-fried.com/academia-in-the-upside-down-of-publishing/>

Syed, M. (2017). Why traditional metrics may not adequately represent ethnic minority psychology. *Perspectives on Psychological Science*, 12(6), 1162-1165.
<https://doi.org/10.1177/1745691617709590>

Wednesday, April 26: OPTIONAL - In-class work session for your Policy Paper and Technical Report

Week 16 – What Now?

Monday, May 1: Lessons Learned

****Policy Paper and Technical Report Due****

**There is no final exam and we will NOT meet during the
scheduled final exam meeting time.**

Have a great summer!