Psychology
UNIVERSITY OF TORONTO

PSY 409H1S – Research Specialization: Theoretical Foundations
Wednesday 1pm-3pm SS 2116

Contact Information

Instructor:

Felix Cheung
SS 4092/600J
Zoom office: https://utoronto.zoom.us/my/felixcheung
f.cheung@utoronto.ca

Office Hours:

Tuesday 1-2pm
(or by appointment)

Course Description and Goals

The course will introduce various meta-scientific topics related to psychological research. The aim is that by the end of this course, you will have:

1. Developed an understanding of the assumptions made in research projects,
2. Gained an appreciation of best research practices,
3. Improved your ability to understand and critique articles on meta-science,
4. Complete a collaborative project that advances meta-science, and
5. Strengthened your communication skills in both oral and written forms.

Course Webpages

Quercus is the main course webpage with course announcements, readings, discussion boards, and other course materials.

Perusall is an online tool that facilitates collaborative reading. Please visit https://app.perusall.com/home to set up a free Perusall account using your name as it appears on Quercus. To access this course on Perusall, please enter the course code CHEUNG-LQC9Z.

Course Evaluation/Marking Scheme

Marking Scheme Overview:

Class participation:	10 points
Perusall Annotation:	10 points

Discussion Facilitation:	20 points
Collaborative Project:	20 points
Final paper:	40 points
	100 points

Class Participation (10 points)

Participation is fundamental to a small seminar course. We learn from each other when we complete the weekly preparations, offer thoughtful comments and questions, and listen and respond to others' comments respectfully. Contributing regularly will help you feel more comfortable as the semester goes on. *I may ask you directly for your thoughts during class*.

Class participation will be graded from **Weeks 2 to 11 (1 point per week)**.

Annotations on Weekly Required Readings (10 points)

Perusall is a collaborative platform where you can annotate while reading. Your annotations can be (but not limited to) questions or comments that bridge across readings, connections to your research experiences, and thoughtful critiques of the strengths or weaknesses in the paper, etc. This exercise is meant to help you engage with the course materials and prepare for class participation. The top 2 annotations will be graded for each article longer than 5 pages, and for short articles, the top 1 annotation will be graded.

Your annotations will be visible to other students, and you are encouraged to respond and give up-votes to annotations made by other students. **Please submit your annotations by the Mondays at Noon** so that the discussion facilitators have time to prepare for the in-class discussion.

Annotations will be graded from **Weeks 2 to 11 (1 point per week)**.

Discussion Facilitation (20 points)

You will select 2 different topics (from 2 different weeks) to serve as discussion facilitators during the semester. Each week, the facilitators should work together to present the take home messages in the readings **in less than 15 minutes**. In the next 60 minutes, the facilitators will stimulate discussions, pose discussion questions that **bridge across the readings**, and highlight issues shared in the annotations made by fellow students on Perusall. The default is that the grade will be based on the group performance.

Although it is certainly possible to facilitate an engaging discussion based on the course materials alone, a more effective facilitation can be achieved (especially for shorter articles under 5 pages) by i) drawing from additional sources (other scholarly articles, blog posts) and/or ii) using in-class activities or multimedia (such as [respectful] memes and videos).

Collaborative Project (20 points)

The class will complete a collaborative project related to meta-science. The goal is that the project will provide tangible benefits to the Department or to the field. A 1-page proposal (2.5%) is due on Week 4 (Jan 29), a 1-2 page progress update (2.5%) is due on Week 7 (Feb 26), and a final product and a 1-2 page reflection is due on Week 11 (Mar 26; 15%).

Final Paper (40 points)
You will write a final paper with no more than 12 double-spaced pages of text that focuses on the metascience of psychology (35%; Due Apr 4th). You will submit a final paper proposal (5%) in Week 8 (Mar 5). Possible topics include: 1) a deep dive into one of the topics in the course, 2) a position paper (e.g., arguing for or against one of the required readings), 3) a review of a body of research that includes realistic, practical, and actionable plans of action (e.g., how to 'move up' the evidence readiness level of a research area), 4) a paper on what psychological researchers can learn from other disciplines that are grabbling with similar issues, etc.

The paper should be written in APA format. Title page, figures, tables, and references do not count towards the page count.

I recommend the website for the Society for Improving Psychological Science as a potential source of inspiration: https://improvingpsych.org/

Course Policies

Penalties for Lateness
For each 24-hour period after the deadline, you will lose 3 points on the assignment.

Any term work that will be handed in **after** the final exam period is subject to a petition for extension of term work. This petition should be filed with the student's College Registrar's Office.

Plagiarism Detection Software
Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (https://uoft.me/pdt-faq).

Specific Medical Circumstances
If you become ill and it affects your ability to do your academic work, consult me right away. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. You can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI. For more information on the VOI, please see http://www.illnessverification.utoronto.ca. For information on Absence Declaration Tool for A&S students, please see https://www.artsci.utoronto.ca/absence. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Religious Accommodation
As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of backgrounds, cultural traditions, and spiritual beliefs. For my part, I will make every reasonable effort to avoid scheduling tests,

examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (like a test, or in-class assignment) due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Departmental Guidance for Undergraduate Students in Psychology
The Department of Psychology recognizes that, as a student, you may experience disruptions to your learning that are out of your control, and that there may be circumstances when you need extra support. Accordingly, the department has provided a helpful guide to clarify your and your instructor's responsibilities when navigating these situations. This guide consolidates Arts & Science Policies for undergraduate students in one place for your convenience. As an instructor in the department, I will frequently consult with these recommendations when providing you with support, and I recommend that you also consult it to learn more about your rights and responsibilities before reaching out to me.

On the use of Generative Artificial Intelligence (Gen AI) Tools
Students may use generative artificial intelligence tools (e.g., ChatGPT) for assignments. If you choose to use generative artificial intelligence tools to assist you in the assignments in this course, this use **must** be documented in an appendix for each assignment. The documentation should include what tool(s) were used, how they were used (i.e., include your prompts and the transcript), and how the results from the AI were incorporated into the submitted work. These tools can be most helpful in improving your writing and clear expression of your ideas (rather than trying to generate complete content which is unlikely to meet the standards of the assignments).

Academic Resources

Accessibility Needs:
Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) (www.accessibility.utoronto.ca) at the beginning of the academic year. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your medical situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your condition with any instructor, and your instructors will not reveal that you are registered with AS.

Writing:
As a student here at the University of Toronto, you are expected to write well. The university provides its students with a number of resources to help them achieve this. For more information on campus writing centres and writing courses, please visit http://www.writing.utoronto.ca/ .

Academic Integrity and Plagiarism:
All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—

representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Speak to me for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at www.writing.utoronto.ca/ . Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see http://www.artsci.utoronto.ca/osai and http://academicintegrity.utoronto.ca/

Other Resources
Student Life Programs and Services (http://www.studentlife.utoronto.ca/)
Academic Success Services (http://www.studentlife.utoronto.ca/asc)
Counselling and Psychological Services (http://www.studentlife.utoronto.ca/hwc)

Course Outline

Week	Date	Topic	Assignments
1	Jan 8	Introduction	
2	Jan 15	Replication Crisis and Beyond	
3	Jan 22	Scientific Utopia Frequentist vs. Bayesian	
4	Jan 29	Preregistration Informative Null Results	Collaborative Project: Proposal (2.5%)
5	Feb 5	Generalizability Crisis Idiosyncrasies in Research	
6	Feb 12	Measurement Crisis	
	Feb 19	Reading Week (No class)	
7	Feb 26	Causality	Collaborative Project: Progress Update (2.5%)
8	Mar 5	Personalized vs. Structural approach	Final paper proposal (5%)
9	Mar 12	WEIRD	
10	Mar 19	Values and Social Justice	
11	Mar 26	Students' Choice	Collaborative Project: Final Product + Reflection (15%)
12	Apr 2	Wrap-up	Final Paper (35%; Due Apr 4)

* Short articles for which your top 1 annotation will count towards your grade.
# Choose one of the articles that aligns closer with your interest

Week 1: Introduction
(Jan 8)

Week 2: Replication Crisis and Beyond
(Jan 15)

Gergen, K. J. (1973). Social Psychology as History. *Journal of Personality and Social Psychology*, *26*(2), 309-320.

*IJzerman, H., Lewis, N. A., Przybylski, A. K., Weinstein, N., DeBruine, L., Ritchie, S. J., ... & Anvari, F. (2020). Use caution when applying behavioural science to policy. *Nature Human Behaviour*, *4*(11), 1092-1094.

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, *349*(6251), aac4716.

Week 3: Scientific Utopia + Frequentist vs. Bayesian
(Jan 22)

*Benjamin, D. J., Berger, J. O., Johannesson, M., Nosek, B. A., Wagenmakers, E. J., Berk, R., ... & Johnson, V. E. (2018). Redefine statistical significance. *Nature human behaviour*, *2*(1), 6-10.

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*(6), 615-631.

Wetzels, R., Matzke, D., Lee, M. D., Rouder, J. N., Iverson, G. J., & Wagenmakers, E. J. (2011). Statistical evidence in experimental psychology: An empirical comparison using 855 t tests. *Perspectives on Psychological Science*, *6*(3), 291-298.

Week 4: Preregistration + Informative Null Results
(Jan 29)

#Easterlin, R. A. & O'Connor, K. (2020). The Easterlin Paradox. *IZA Discussion Paper*, No. 13923, Available at SSRN: https://ssrn.com/abstract=3743147

#*Galton, F. (1907). Vox populi (the wisdom of crowds). *Nature*, *75*(7), 450-451.

Nosek, B. A., Ebersole, C. R., DeHaven, A. C., & Mellor, D. T. (2018). The preregistration revolution. *Proceedings of the National Academy of Sciences*, *115*(11), 2600-2606.

#Richards, D. A., Ekers, D., McMillan, D., Taylor, R. S., Byford, S., Warren, F. C., ... & Finning, K. (2016). Cost and Outcome of Behavioural Activation versus Cognitive Behavioural Therapy for Depression (COBRA): a randomised, controlled, non-inferiority trial. *The Lancet*, *388*(10047), 871-880.

The three articles here are exemplars of papers that found interesting null results.

Week 5: Generalizability Crisis + Idiosyncrasies in Research
(Feb 5)

#Silberzahn, R., Uhlmann, E. L., Martin, D. P., Anselmi, P., Aust, F., Awtrey, E., ... & 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.

#Landy, J. F., Jia, M. L., Ding, I. L., Viganola, D., Tierney, W., Dreber, A., ... & Crowdsourcing Hypothesis Tests Collaboration. (2020). Crowdsourcing hypothesis tests: Making transparent how design choices shape research results. *Psychological Bulletin*, *146*(5), 451-479.

Yarkoni, T. (2022). The generalizability crisis. *Behavioral and Brain Sciences*, *45*.

The 2 articles here deal with a similar issue, with the first one focused on observational design and the second one focused on experimental design.

Week 6: Measurement Crisis
(Feb 12)

#Chester, D. S., & Lasko, E. N. (2021). Construct validation of experimental manipulations in social psychology: Current practices and recommendations for the future. *Perspectives on Psychological Science*, *16*(2), 377-395.

#Flake, J. K., & Fried, E. I. (2020). Measurement schmeasurement: Questionable measurement practices and how to avoid them. *Advances in Methods and Practices in Psychological Science*, *3*(4), 456-465.

Fried, E. I., & Nesse, R. M. (2015). Depression sum-scores don't add up: why analyzing specific depression symptoms is essential. *BMC medicine*, *13*(1), 1-11.

The 2 articles here deal with a similar issue, with the first one focused on experimental design and the second one focused on observational design.

Week 7: Causality
(Feb 26)

Bailey, D. H., Jung, A. J., Beltz, A. M., Eronen, M. I., Gische, C., Hamaker, E. L., ... & Murayama, K. (2024). Causal inference on human behaviour. *Nature Human Behaviour*, *8*(8), 1448-1459.

*Smith, G. C., & Pell, J. P. (2003). Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials. *Bmj*, *327*(7429), 1459-1461.

Supplementary Reading:
Rohrer, J. M. (2018). Thinking clearly about correlations and causation: Graphical causal models for observational data. *Advances in methods and practices in psychological science*, *1*(1), 27-42.

Week 8: Personalized vs. Population-wide approach
(Mar 5)

*Barlow, D. H., & Nock, M. K. (2009). Why can't we be more idiographic in our research?. *Perspectives on Psychological Science*, *4*(1), 19-21.

Chater, N., & Loewenstein, G. (2023). The i-frame and the s-frame: How focusing on individual-level solutions has led behavioral public policy astray. *Behavioral and Brain Sciences*, *46*, e147.

Week 9: WEIRD
(Mar 12)

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. *Behavioral and brain sciences*, *33*(2-3), 1-23.

#Cheung, F., Kube, A., Tay, L., Diener, E., Jackson, J. J., Lucas, R. E., ... & Leung, G. M. (2020). The impact of the Syrian conflict on population well-being. *Nature communications*, *11*(1), 1-10.

#Stutzman, L.D., Lun, P., Yang, M., Chan, K., & Cheung, F. (R&R). Epilogue to the war: Afghanistan reports the lowest well-being in recorded history. *Science Advances*.

#The 2 articles here are meant to illustrate a peacetime bias in psychology, focusing on 2 different conflict settings.

Week 10: Values and Social Justice
(Mar 19)

Roberts, S. O., Bareket-Shavit, C., Dollins, F. A., Goldie, P. D., & Mortenson, E. (2020). Racial inequality in psychological research: Trends of the past and recommendations for the future. *Perspectives on psychological science*, *15*(6), 1295-1309.

*Cope, M. B., & Allison, D. B. (2010). White hat bias: examples of its presence in obesity research and a call for renewed commitment to faithfulness in research reporting. *International Journal of Obesity*, *34*(1), 84-88.

Panasiuk, S.L., McCanny, A., & Cheung, F. (in press). Methods reflect values: Evaluating the shortcomings of the average for measuring population well-being. *Journal of Personality and Social Psychology*.

Week 11: Students' Choice
(Mar 26)

Week 12: Wrap-up
(Apr 2)