



## PSY 409H1F – Research Specialization: Theoretical Foundations

Thursday 1pm-3pm SS 560

### Contact Information

**Instructor:**

Felix Cheung  
SS 4092/600J  
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**Office Hours:**

Wednesday 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-7ND3Z**.

### 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

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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 end of the Tuesdays before 1pm** 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 readings 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 remaining class time, 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 (Sep 28), a 1-2 page progress update (2.5%) is due on Week 8 (Oct 26), and a final product and a 1-2 page reflection is due on Week 12 (Nov 30; 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%). You will submit a final paper proposal (5%) on Week 9 (Nov 2). 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 grappling 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/>

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## **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.

### **ChatGPT**

ChatGPT is a novel AI chat bot. You are allowed to use it in this course, and if you use it, you are required to highlight parts of your paper that are i) **directly copy-and-pasted from ChatGPT (in yellow)** and ii) **edited based on ChatGPT-generated texts (in blue)**. Please note that this is only for this course, and other instructors may have different views on ChatGPT.

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## **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](http://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/](http://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**

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Assignments</b>
1	Sep 7	Introduction	
2	Sep 14	Replication Crisis and Beyond	
3	Sep 21	Scientific Utopia Frequentist vs. Bayesian	
4	Sep 28	Preregistration Informative Null Results	Collaborative Project: Proposal (2.5%)
5	Oct 5	Generalizability Crisis Idiosyncrasies in Research	
6	Oct 12	Measurement Crisis	
7	Oct 19	Causality	
8	Oct 26	Personalized vs. Population-wide approach	Collaborative Project: Progress Update (2.5%)
9	Nov 2	WEIRD	Final paper proposal (5%)
	Nov 9	Reading Week (No class)	
10	Nov 16	Social Justice	
11	Nov 23	Students' Choice	
12	Nov 30	Wrap-up	Collaborative Project: Final Product + Reflection (15%)
	Dec 7		Final Paper (35%)

## **Week 1: Introduction**

(Sep 8)

## **Week 2: Replication Crisis and Beyond**

(Sep 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**

(Sep 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**

(Sep 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.

## **Week 5: Generalizability Crisis + Idiosyncrasies in Research**

(Oct 6)

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.

### **Week 6: Measurement Crisis**

(Oct 13)

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.

### **Week 7: Causality**

(Oct 20)

Lawlor, D. A., Tilling, K., & Davey Smith, G. (2016). Triangulation in aetiological epidemiology. *International journal of epidemiology*, 45(6), 1866-1886.

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.

\*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.

### **Week 8: Personalized vs. Population-wide approach**

(Oct 27)

\*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.

Diener, E., Oishi, S., & Lucas, R. E. (2015). National accounts of subjective well-being. *The American psychologist*, 70(3), 234-242.

Personalized Happiness working paper

### **Week 9: WEIRD**

(Nov 3)

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. *Behavioral and brain sciences*, 33(2-3), 61-83.

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.

Ukraine

### **Week 10: Social Justice**

(Nov 17)

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.

Aggregation

### **Week 11: Students' Choice**

(Nov 24)

### **Week 12: Wrap-up**

(Dec 1)

\* Short articles for which your top 1 annotation will count towards your grade.