SCIENTIFIC THINKING IN PSYCHOLOGY (PSY 301)
University of Oregon
Winter 2021
Mondays 2:15-3:45 Drop In Q&A Session
Wednesdays 2:15-3:45 Collaboration Session (Attendance Required)

Instructor
Jordan Pennefather, Ph.D.
Email: pennefat@uoregon.edu
Office Hours: Wednesdays noon to 1pm:
https://uoregon.zoom.us/j/92792218381?pwd=RkM1dUxWV25YMnZENDM2dGY3aTJQdz09

Teaching Assistants
Matt Morrell
Email: mmorrell@uoregon.edu
Office Hours: Tuesday and Thursday noon to 1pm
Netanel Weinstein
Email: netanelw@uoregon.edu
Office Hours: Tuesday and Thursday 1:15-2:15pm

COURSE MATERIALS

COURSE DESCRIPTION
"Follow the data" is a core principle in all sciences. In this course, you will learn how to “follow the data” to make sense of human behavior and think like a psychologist. You will acquire the fundamentals of how to evaluate new knowledge about human behavior by carefully considering the properties of data collected from human beings. We will consider all aspects of an empirical endeavor, from formulating a testable scientific hypothesis, to collecting relevant and valid data, to analyzing and communicating these data, to asking what's next. Making sense of how and why people feel, think and act the way they do is something we all do everyday -- in this course, we will learn how to give ourselves the best shot at making conclusions that are true. Whether we read about others' discoveries or make our own, we should follow the data.

PSY 301 meets the criteria of a Group-Satisfying Science (SC) course by introducing you to the fundamental methods that are used in psychological science and demonstrating the way knowledge is created in the field. The course emphasizes the critical thinking skills that are essential for informative scientific endeavors. The course addresses upper division science group criteria by encouraging the specific application of general scientific principles and skills; for example, by requiring you to evaluate claims about human behavior that appear in scientific articles as well as in the media. The evaluation methods used in this course will measure a high level of understanding by expecting you to continually practice and apply sophisticated empirical thinking skills.

This course is the first course in the PSY 301-303 sequence for psychology majors. Majors will be building critical thinking skills and an understanding of how knowledge is generated in psychological research in preparation for acquiring data analysis skills in PSY 302. In PSY 303 you will be using the skills you gained in PSY 301 and PSY 302 to design, implement, analyze, draw conclusions from, write up, and present scientific research in psychology.

LEARNING OUTCOMES
You will develop many skills in this course. By the end of this course you should be able to:
Think. Think like a scientist when you read science headlines – you will become a sharper consumer of scientific discoveries. Search for evidence, rather than just accepting claims you encounter.

Find. Find key ideas and evidence in scientific literature and media reports. Identify research questions, hypotheses, research design, and evidence in scientific articles and news articles.

Show. Show how evidence does or does not support an interesting hypothesis about human behavior. Critically evaluate research designs and the quality of evidence presented in scientific articles.

Tell. Communicate clearly and effectively about psychological research, including methodological and ethical issues in psychology, based on an understanding of both the strengths and limitations of empirical evidence.

COURSE EXPECTATIONS

Class attendance during the collaboration sessions is essential to your success in this course. We will be completing in-class activities during the collaboration sessions, typically in small groups. Attendance during these sessions will allow you to work with the instructor and fellow students to complete the activities. If you don’t attend you are responsible for completing the assignment on your own. Collaboration Zoom sessions will focus on developing your skills as consumers of psychological research, but they will also provide you with tools necessary for being producers of research. This course promotes active learning through discussion, in-class exercises and activity assignments. When in the collaboration session, you should stay engaged with the material rather than just going through the motions. Come prepared for collaboration session by doing the readings and watching the lecture videos beforehand. Do the in-class exercises. Ask questions. Take notes. Go to office hours.

STUDENT WORKLOAD

When you complete this course, you will earn 4 credits toward your degree. Four credits is the equivalent of 120 hours of work across the term, or 12 hours per week for 10 weeks. You will spend 3 hours in class each week. The other 9 hours will be spent completing readings (about 4 hours per week; 40 hours total), activity assignments and papers (about 40 hours total), and studying for exams (at least 10 hours total, although more time may be needed for best results). The workload will be relatively steady throughout the term, as we build skills through regular assignments and consolidate knowledge through regular exams.

COURSE REQUIREMENTS

Collaboration Activities
There will be 10 weekly collaboration activities. During our Wednesday meetings the topic will be introduced to the full class after which you will be broken up into smaller groups to compete the activity. If you miss the Wednesday Zoom session you will be responsible for completing the assignment on your own. Collaboration assignments must be submitted on Canvas by midnight on Sunday of the week assigned. No late collaboration assignments will be accepted.

Thinking Assignments
There will be 9 thinking activities during the term. You will be expected to build your skills consistently throughout the quarter. I will ask you to complete an activity assignment to help learn the course concepts and to actively grapple with the empirical process. See the course schedule and assignment schedule for more details. You will receive specific written instructions for each activity assignment. Your best bet for doing well on these assignments is to attend class regularly and build skills with your instructor and fellow student colleagues. Activity assignments must be submitted on Canvas by midnight on Sunday of the week assigned. No late thinking
assignments will be accepted.

**Paper**

A key objective of this course is to learn how to be an informed consumer of psychological research. You will gain practice critically evaluating empirical claims, connecting these claims to data, and communicating about psychological research by completing a paper assignment. **Late papers will be penalized by 1 letter grade for each day past the deadline.**

**Quizzes**

There will be five open-book quizzes over the term on Canvas. Quizzes will consist of conceptual and applied multiple-choice and short-answer questions, similar to the exercises we work on in class. Quizzes will cover all material from class and the readings since the previous quiz.

**GRADING**

Final grades in this course will be determined by the following:

- Collaboration Activities: 20%
- Thinking Assignments: 40%
- Paper: 20%
- Quizzes: 20% (4% each)

Grades will be distributed as follows:

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100%</td>
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<tr>
<td>A-</td>
<td>90-92%</td>
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<td>B+</td>
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<tr>
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<tr>
<td>B-</td>
<td>80-82%</td>
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<tr>
<td>C+</td>
<td>77-79%</td>
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<tr>
<td>C</td>
<td>73-76%</td>
</tr>
<tr>
<td>C-</td>
<td>70-72%</td>
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<tr>
<td>D+</td>
<td>67-69%</td>
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<tr>
<td>D</td>
<td>63-66%</td>
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<tr>
<td>D-</td>
<td>60-62%</td>
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<tr>
<td>F</td>
<td>0-59%</td>
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Please see the psychology department guidelines for a description of the type of achievement that each grade signifies: [http://psychology.uoregon.edu/courses/department-grading-standards/](http://psychology.uoregon.edu/courses/department-grading-standards/)

**Extra Credit**

You can earn extra credit in this course by serving as a participant in the Psychology Human Subjects Pool. If you decide to participate in psychological research, you will earn 1% of extra credit toward your **final grade in the course** for each hour you participate, up to a maximum of 2% (credits beyond the maximum of 2 will not be counted). For example, 2 hours of credit would increase a final grade of 79% up to an 81%, giving you a B- for the course instead of a C+. To participate, follow the guidelines for the Human Subject Pool posted at [https://psychology.uoregon.edu/welcome/human-subjects-pool](https://psychology.uoregon.edu/welcome/human-subjects-pool). Students who prefer not to participate in the Psychology Human Subjects Pool can instead collect extra credit by writing a short paper. If this is your preference, please see me to discuss the details of the requirement. **All extra credit work must be completed by Friday, March 12th.**

**SPECIAL ACCOMMODATIONS**

**Accessible Education Center (AEC)**

If you have a documented disability and anticipate needing accommodations in this course, please notify me as soon as possible. Also, please request that a counselor at the Accessible Education Center ([uoaec@uoregon.edu](mailto:uoaec@uoregon.edu), 541-346-1155) send a letter verifying the type of accommodation that is appropriate. For a list of resources provided by the Accessible Education Center, please see [http://aec.uoregon.edu](http://aec.uoregon.edu).
Students for Whom English is a Second Language
If you are a non-native English speaker and think you may have trouble in this course due to language difficulties, please see me as soon as possible to make any necessary special arrangements.

ACADEMIC INTEGRITY

We take academic integrity seriously. All work submitted in this course must be your own. Cheating includes providing or accepting information on an exam or assignment, or allowing someone else to copy your work. In addition, lying to try to get points (e.g., lying about having turned in an assignment on time) is considered academic dishonesty and will be treated as cheating. Plagiarism means copying someone’s written work without proper citation (this includes your classmate’s work, scholarly articles, Wikipedia, or other websites).

All instances of cheating and plagiarism will have serious consequences. You will receive a zero on the assignment and be reported to UO’s student conduct coordinator. If the offense is serious, you will receive an F in the course.

Simply put: Don’t cheat and don’t plagiarize. You will be mad at me, and (hopefully) disappointed in yourself. It’s not worth it. If you have any questions about what constitutes academic dishonesty, please ask me.

For more information about academic misconduct, see the University Student Conduct Code at http://dos.uoregon.edu/conduct. Additional information about plagiarism is available at http://researchguides.uoregon.edu/citing-plagiarism.

All work submitted in this course must be your own and produced exclusively for this course. Here are the expectations for the work in our course. It is considered cheating if you violate these expectations.

- Weekly thinking assignments: You may review course readings and recordings with your student colleagues, but your assignments must be your own work.
- Class collaborations: You are encouraged to collaborate with your student colleagues and to explicitly state who you worked with to produce the submitted work.
- Quizzes: You may use the textbook, recordings, and your notes to prepare for quizzes. However, you may not consult with any other person while you are taking the quiz. Do not discuss quizzes with your fellow students. Do not reproduce the quizzes in any way (screenshots, cut-and-paste, photos).
- Paper: You may discuss ideas and/or get feedback on a draft with student colleagues, but your submitted writing must be your own work.

TITLE IX

I am a student-directed employee. For information about my reporting obligations as an employee, please see titleix-uoregon.edu. Students experiencing any form of prohibited discrimination or harassment, including sex or gender based violence, may seek information on http://safe.uoregon.edu, https://respect.uoregon.edu, https://titleix.uoregon.edu or https://aaeo.uoregon.edu, contact the non-confidential Title IX office (541-346-8136), AAEO office (541-346-3123) or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help.

I am a mandatory reporter of child abuse. Please find more information at https://hr.uoregon.edu/policies-leaves/general-information/mandatory-reporting-child-abuse-and-neglect/presidents-message

UO DREAMERS

I support all students regardless of immigration status or country of origin. In January I participated in Dreamer Ally training. As a Dreamer Ally, I support Dreamer students and seek to promote their sense of their sense of belonging and safety as they pursue their higher education goals. For more information and resources, please visit
the UO Dreamers page (https://blogs.uoregon.edu/dreamers/) and the Immigration FAQs page (https://international.uoregon.edu/immigration_faq). I commit to not sharing your status with anyone if you reveal it to me, but also remind you that when interacting with faculty, staff, and offices around campus, you are never required to reveal your immigration status.

COURSE SCHEDULE

*The course schedule may change, but exam dates will not change unless absolutely necessary.*

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Due</th>
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<tr>
<td>1</td>
<td>January 4th</td>
<td>Welcome to Scientific Thinking!</td>
<td>Ch. 1 &amp; 2</td>
<td>Collaboration 1</td>
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<tr>
<td>2</td>
<td>January 11th</td>
<td>Variables, claims, &amp; validities</td>
<td>Ch. 3</td>
<td>Quiz 1 Collaboration 2</td>
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<td>Thinking Activity 1</td>
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<td>3</td>
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<td>Measurement reliability &amp; validity</td>
<td>Ch. 5</td>
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<td>January 25th</td>
<td>Surveys and observations Sampling</td>
<td>Ch. 6 &amp; 7</td>
<td>Quiz 2 Collaboration 4</td>
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<td>Bivariate correlation</td>
<td>Ch. 8</td>
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<td>Multivariate correlation</td>
<td>Ch. 9</td>
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<td>Threats to internal validity</td>
<td>Ch. 11</td>
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<td>Complex experimental designs</td>
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<td>Ethics and Generalization</td>
<td>Ch. 4 &amp; 14</td>
<td>Quiz 5 Collaboration 10</td>
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<td>Thinking Activity 9</td>
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ADDITIONAL READING LIST

*These are required readings. Each reading is posted on Canvas and is assigned to a particular class session.


