SCIENTIFIC THINKING IN PSYCHOLOGY (PSY 301)
University of Oregon
Winter 2020
MW 2:00-3:20 pm ♦ 250 Clinical Science ♦ 4 credits ♦ CRN: 25281

Instructor
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Office Hours: Wednesday 9-11

COURSE MATERIALS
♦ PDF files on Canvas: Additional readings and materials will be posted on our Canvas site.
♦ iClicker: If you do not own one already, you will need to purchase an iClicker for use in class. It will be used to track attendance and to do regular learning assessments.

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 is essential to your success in this course. Attendance will be tracked using iClickers. Class 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 class, you should stay engaged with the material rather than just going through the motions. Come prepared for class. 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

Attendance/Participation

You must participate in ungraded class exercises using your iClicker to get credit for each day you attend lecture. While you get 2 “free” miss days, you shouldn’t use them unless absolutely necessary; if you skip class, you will miss important information. You are required to have an iClicker and register it on Canvas by the start of Week 2, or you will begin to lose attendance points.

Reading Quizzes

You should complete the assigned reading before coming to class. The textbook is accessible and engaging. Although the reading load will be relatively demanding, it should be fun and rewarding to do. To encourage you to keep up with the reading, short quizzes will be given at the beginning of some classes (see the course schedule for details) via iClicker. Quizzes will consist of 3 multiple-choice questions drawn from the day’s reading assignment. These questions should be easily answered if you have read the material.

Of the seven quizzes, the lowest score will be dropped, with the average score of the remaining six yielding 6% of the final grade. No make-up quizzes will be offered; if you miss a quiz, that grade will be the one that is dropped.
Worksheet Assignments

There will be four activity worksheets 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 the beginning of class on the day they are due. Your best 3 worksheets will be graded, with the lowest of 4 dropped. **No late worksheets will be accepted.**

Research Critiques

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 two paper assignments. For each critique, you will read an article and answer questions about it. See schedule for due dates. **Late critiques will be penalized by 1 letter grade for each day past the deadline.**

Exams

There will be two in-class midterm exams and a final exam. Exams will consist of conceptual and applied multiple-choice and short-answer questions, similar to the exercises we work on in class. Exams will cover all material from class and the readings since the previous exam. The final exam will be cumulative but will emphasize course material covered since the second midterm exam. The final exam must be taken at the university-scheduled time. **Make-up exams are not permitted except in documented emergency situations or University sponsored activities.**

GRADING

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

- Attendance/participation: 5% – up to 2 classes can be missed without penalty
- Reading quizzes: 6% - lowest quiz score is dropped
- Worksheet assignments: 15% (5% each best 3 of 4)
- Research critiques: 20% (10% each)
- Three exams: 54% (18% each)

Grades will be distributed as follows:

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<thead>
<tr>
<th>Grade</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
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<tbody>
<tr>
<td>B+</td>
<td>87-89%</td>
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<tr>
<td>C+</td>
<td>77-79%</td>
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<tr>
<td>D+</td>
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<tr>
<td>A</td>
<td>93-100%</td>
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<tr>
<td>B</td>
<td>83-86%</td>
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<tr>
<td>C</td>
<td>73-76%</td>
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<td>80-82%</td>
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<tr>
<td>C-</td>
<td>70-72%</td>
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<tr>
<td>D-</td>
<td>60-62%</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/research/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 13th.

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, 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.

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.

CLASSROOM ETIQUETTE

As a courtesy to your instructor and to your fellow classmates, please arrive on time for class and stay for the duration of the class period. Getting up in the middle of class is very disruptive. Please turn off phones and any electronic devices that might be distracting to others at the beginning of class. Be attentive (i.e., no texting, watching videos, web-surfing, etc.). It is the policy of the University of Oregon to support and value diversity, and I expect you to treat your fellow students and your instructor with respect.

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 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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<tbody>
<tr>
<td>1</td>
<td>M 1/6</td>
<td>Course overview: Thinking like a scientist</td>
<td>Ch. 1</td>
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<td></td>
<td>W 1/8</td>
<td>Why do research, and where to find it</td>
<td>Ch. 2, Jordan &amp; Zanna</td>
<td>Register i-clicker</td>
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<td>2</td>
<td>M 1/13</td>
<td>Variables, claims, &amp; validities</td>
<td>Ch. 3</td>
<td>Reading Quiz 1</td>
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<td>Validities</td>
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<td>M 1/20</td>
<td><strong>Martin Luther King Jr Day</strong></td>
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<td>W 1/23</td>
<td>Research ethics</td>
<td>Ch. 4, Kramer et al.</td>
<td>Reading Quiz 2</td>
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<td>M 1/27</td>
<td>Exam 1</td>
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<td>W 1/29</td>
<td>Measurement reliability &amp; validity</td>
<td>Ch. 5, Iacoboni et al.</td>
<td>Reading Quiz 3, Worksheet2</td>
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<td>5</td>
<td>M 2/3</td>
<td>Measurement reliability &amp; validity</td>
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<td>W 2/5</td>
<td>Surveys and observations</td>
<td>Ch. 6</td>
<td>Research Critique 1 (due Sunday midnight)</td>
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<td>M 2/10</td>
<td>Sampling Bivariate correlation</td>
<td>Ch. 7, Ch. 8</td>
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<td>W 2/12</td>
<td>Bivariate correlation Multivariate correlation</td>
<td>Ch. 9</td>
<td>Reading Quiz 4</td>
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<td>Multivariate correlation</td>
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<td>W 2/19</td>
<td>Exam 2</td>
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<td>8</td>
<td>M 2/24</td>
<td>Experimental designs</td>
<td>Ch. 10</td>
<td>Reading Quiz 5</td>
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<td>W 2/26</td>
<td>Threats to internal validity</td>
<td>Ch. 11</td>
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<td>9</td>
<td>M 3/2</td>
<td>Complex experimental designs</td>
<td>Ch. 12</td>
<td>Reading Quiz 6, Worksheet 4</td>
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<td>W 3/4</td>
<td>Factorial variations</td>
<td>Ch 12-13</td>
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<td>M 3/9</td>
<td>Factorial variation cont.</td>
<td>Ch 13</td>
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<td>W 3/11</td>
<td>Replicability &amp; Overview</td>
<td>Ch 14</td>
<td>Reading Quiz 7, Research Critique 2 (Due Sunday midnight)</td>
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<td><strong>Thursday 3/19</strong></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.


