

SCIENTIFIC THINKING IN PSYCHOLOGY (PSY 301)

University of Oregon

Summer 2018

MTWR 10:00-11:50 am " McKenzie 125 " 4 credits " CRN: 42163

<http://canvas.uoregon.edu>

Instructors

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COURSE MATERIALS

" **Textbook:** Morling, B. (2015). *Research Methods in Psychology: Evaluating a World of Information* (2nd ed.). New York: Norton. The textbook has a website with supplemental materials that may be helpful for your studying:

<http://www.norton.com/college/psych/research-methods-in-psychology/>

" **PDF files on Canvas:** Additional readings and materials will be posted on our Canvas site.

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, and finally, 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. Psychology 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 in-class activities. 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 30 hours per week for 4 weeks. You will spend about 8 hours in class each week. The other 22 hours will be spent completing readings (about 8-10 hours per week), activity assignments (about 2 hours total), and studying for quizzes/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 quizzes/exams.

COURSE REQUIREMENTS

Attendance/Participation

You must participate in class exercises/content checks to get credit for each day you attend lecture. While you get 1 “free” miss day, you shouldn’t use it unless absolutely necessary; if you skip class, you will miss important information. Also, you cannot use your free “miss” day on a quiz day.

Content Check

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, **check-in/check-out questions will be given at both the beginning and end of class**. These assignments will consist of multiple-choice questions or one open-ended question drawn from the day’s reading assignment as well as lecture. These questions should be easily answered if you have read the material and/or listened to lecture. Although these questions will be checked for accuracy, they will be counted towards your attendance/participation grade. These assignments can not be made up.

Quizzes

There will be 3 required in-class quizzes on the first three Thursdays of the term (on August 23rd, August 30th, and September 6th). Quizzes will consist of conceptual and applied multiple-choice, as well as two open-ended questions. Quizzes will cover all material from lecture and the readings since the previous quiz.

Activity Assignments

You will be expected to build your skills consistently throughout the term. Once a week for the first three weeks, we will ask you to take part in an *in-class* 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. Each assignment will also incorporate a write-up which will be completed outside of class and turned in via Canvas. Your best bet for doing well on these assignments is to attend class regularly, take notes, and build skills with your instructor and fellow student colleagues.

You will be given time to work on the activity assignments in class on Wednesdays of the first three weeks. The written portion of the assignment will then be due the following Friday on Canvas by 11:59 am.

Research Consumer 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. For the paper, you will be asked to read and summarize an empirical research paper, identify the claim the scientists are trying to make, and critically evaluate empirical research using the skills and knowledge you have acquired in the course. *See the course schedule and assignment schedule for more details.* **You will receive specific written instructions for the paper two weeks in advance of the due date.**

The paper must be submitted on Canvas by 11:59 pm on Tuesday, September 11th. Late papers will be penalized by dropping one full letter grade for the amount of days late (e.g., if it is late by one day, the highest grade you can possibly get is a B; if you are late by two days, the highest grade you can possibly get is a C), and no papers will be accepted more than three days late without some documented medical or family emergency.

Final Exam

The final exam will be cumulative and will be similar to previous quizzes (e.g., multiple-choice and open-ended questions), but about double in length. **The exam will take place the last day of class on Thursday, September 13th.**

****** Make-up quizzes and exams will not be accepted, due to the short length of term. If you believe you will have to miss a quiz or the final exam, please consider dropping the course or talking to us.***

GRADING

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

- .. Attendance/participation: 5% – up to 1 classes can be missed without penalty
- .. Activity assignments (three total): 30% (10% each)
- .. Quizzes (three total): 30% (10% each)
- .. Research consumer paper: 15%
- .. Final exam: 20%

Grades will be distributed as follows:

A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%

D+	67-69%
D	63-66%
D-	60-62%
F	0-59%

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/>

SPECIAL ACCOMMODATIONS

Accessible Education Center (AEC)

If you have a documented disability and anticipate needing accommodations in this course, please notify us 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 us 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 any quiz 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 us, and (hopefully) disappointed in yourself. It's not worth it. If you have any questions about what constitutes academic dishonesty, please ask.

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. 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.). You are allowed to use a laptop/tablet, as long as it is for class-related activities. One of us will be in the back of the classroom and, if we see you are using your electronic devices inappropriately, then you will lose participation points for that day and your privilege to use your electronic device could be revoked. It is the policy of the University of Oregon to support and value diversity, and we expect you to treat your fellow students and your instructor with respect.

The best learning environments are ones where diverse opinions and experiences are discussed in a respectful manner. Our goal is to create an accessible and inclusive learning environment. Please talk to us if there are aspects of this course that create barriers to your participation or you doing well in this class.

TITLE IX

We are student-directed employees. For information about our 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> or 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.

We are mandatory reporters 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

We support all students regardless of immigration status or country of origin. We commit to not sharing your status with anyone if you reveal it to us, 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 quiz dates will not change unless absolutely necessary.*

We ek	Date	Topic	Reading	Due
1	M 8/20	Thinking like a scientist & What is research	Ch. 1 & Ch. 2 Roediger & Gallo	
1	T 8/21	Overall Framework: Three Claims, Four Validities	Ch. 3	
1	W 8/22	Measurement and Reliability	Ch. 5 Iacoboni et al. & response articles	AA1 In-Class
1	R 8/23	Research Ethics	Ch. 4	Quiz 1
1	F 8/24	NO CLASS		AA1 Due
2	M 8/27	Surveys, Observation, and Sampling	Ch. 6 Ch. 7	
2	T 8/28	Bivariate Correlations	Ch. 8	
2	W 8/29	Multivariate Correlations	Ch. 9	AA2 In-class
2	R 8/30	Quiz & Discussion of Paper		Quiz 2
2	F 8/31	NO CLASS		AA2 Due
3	M 9/3	NO CLASS		

3	T 9/4	Experimental Design	Ch. 10	
3	W 9/5	Experimental Design Continued & Quasi-experimental designs		AA3 In-class
3	R 9/6	Confounds & Understanding Null Effects	Ch. 11	Quiz 3
3	F 9/7	NO CLASS		AA3 Due
4	M 9/10	Complex Designs	Ch. 12 (up to pg. 353)	
4	T 9/11	Interpreting Factorial Designs & Factorial Variations	Ch. 12 (Starting at 353 - Interpreting Factorial Results)	Research Consumer Paper Due
4	W 9/12	Replicability and Generalizability Review Day	TBD	
4	R 9/13	Final exam!		Final Exam

ADDITIONAL READING LIST

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

Iacoboni, M., Freedman, J., & Kaplan, J. (2007, November 11). Op-Ed; This is your brain on politics. *The New York Times*, p. 414.

Response: Politics and the Brain. (2007, November 14). *The New York Times*.
<http://www.nytimes.com/2007/11/14/opinion/lweb14brain.html>

Roediger, H. L., & Gallo, D. A. (2004). How to read a journal article in cognitive psychology. In D. A.