

PSY 301 SCIENTIFIC THINKING

Class meets T/TH 12:00-1:20 PM (PDT) in LLC South 101

INSTRUCTOR

Dr. Caitlin Fausey
fausey@uoregon.edu

*Student hours Friday 3-5 PM (PDT) via Zoom. Zoom link is also posted on Canvas.

*<https://uoregon.zoom.us/j/98728516922?pwd=Yk8xWXNZaVI6cTZ1eXdkTGluaVQ4dz09>

GRADUATE EXPERTS

Tamara Niella
tniella@uoregon.edu
*Student hours by appointment

Tess Sameshima
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*Student hours by appointment

COURSE OVERVIEW

How do we make sense of human behavior? In this course, we will develop an instinct for an empirical answer: "Follow the data". We will wrestle with how to create an informative empirical endeavor: from making observations, to 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.

COURSE TEXTBOOK (required)

Morling, B. (2020). Research methods in psychology (4th ed.). New York: Norton.

Option 1: Hardcopy from the Duck Store

<https://www.uoduckstore.com/>

Option 2: eBook through publisher website

<https://www.norton.com/books/9780393536263>

LEARNING GOALS FOR THIS COURSE

You will develop many skills in this course. By the end of this course you should be able to:

- (1) **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.
- (2) **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.
- (3) **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.
- (4) **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.

THE GAME PLAN

Our primary goal is to learn together. We will achieve this through multiple learning opportunities: weekly thinking assignments, collaboration assignments, student hours. Please pay attention to the important section at the top of the next page about two additional learning opportunities that are required.

Weekly schedule. (All dates & times are local to Eugene, OR. Pacific Daylight Time USA.)

- (1) Sunday: **Weekly assignments DUE on Canvas** **11:59 PM PDT**
- *Thinking assignment: Each week you will individually complete a thinking assignment. You will submit your assignment using Canvas assignments. Instructions will be clearly indicated inside each week's Canvas module.
- *Collaboration assignment: Each week you will collaboratively complete a collaboration assignment with your small group. You will submit your assignment using Canvas assignments. We will allocate some class time each week to work together on our collaborations. If you miss class, you may complete the week's collaboration assignment by yourself. You may also work together with your colleagues outside of class via Zoom and/or in-person as desired. Instructions will be clearly indicated inside each week's Canvas module.
- (2) Sunday: **Make a plan for the upcoming week**
- *Readings: Include time in your plan to read the week's associated reading. All reading will be clearly specified inside the week's module on Canvas. Make a plan for when you will read this course's material on your own time during the week.
- *Thinking assignment: Instructions for the upcoming week's assignment will be clearly specified inside the week's module on Canvas. Make a plan for when you will complete the assignment in order to submit it to Canvas by next Sunday's deadline.
- (3) Tuesday: **Class session, 101 LLC South** **12:00-1:20 PM PDT**
*In-class lecture and activities.
- *Materials posted to Canvas after class: Relevant lecture slides will be posted after each class, along with a summary of any in-class questions and discussions that arose. We will not record in-class lectures per se in order to preserve student privacy.
- (4) Thursday: **Class session, 101 LLC South** **12:00-1:20 PM PDT**
*In-class lecture and activities.
- *Collaboration assignment: Confirm with your small group how you will wrap up this week's collaboration assignment. Make a plan for how you will complete the assignment in order to submit it to Canvas by Sunday's deadline.
- (5) Friday: **Student hours via Zoom (optional)** **3:00-5:00 PM PDT**
*Opportunity to ask Dr. Fausey questions. The Zoom link is shared on Canvas.

TWO ADDITIONAL LEARNING OPPORTUNITIES

Required research paper: You will show off everything you've learned. Instructions will be shared via Canvas later in the course. Your weekly thinking assignments will be setting you up for success on this research paper. You will submit this assignment to Canvas by **Friday June 9, 2023 11:59 PM PDT**.

Required quizzes: Four quizzes will become available on Canvas throughout the term. You can complete them at any time. They are open book, open notes. They do not have time limits. If you get answers wrong, you can re-take the quiz. You must complete each quiz on your own. Evidence shows that taking quizzes is a very good way to make learning 'stick' -- I hope you remember some lessons from this course as you move forward in your life. Quiz opportunities will be announced on Canvas and will remain available through **Wednesday June 14, 2023 11:59 PM PDT**.

EXPECTATIONS & GRADING

Your job is to engage with colleagues via class sessions and Canvas modules each week, get involved in the material, and ask lots of questions. Grades will be based on thinking assignments, collaboration assignments, quizzes, and a paper.

Readings. Required readings will be clearly indicated in each week's Canvas module. Expect to dedicate considerable time to the readings -- it will be both demanding and rewarding. You should complete the assigned readings during their assigned week in order to give yourself the best shot at success on the weekly thinking assignment and collaboration assignment. You will apply principles from the readings to your thinking assignments, collaboration assignments, quizzes, and research paper.

Thinking assignments (each week). Required weekly thinking assignments will be clearly indicated in each week's Canvas module. You will build your skills consistently throughout the quarter. Each week, you will complete a thinking assignment to help you learn the course concepts and to actively grapple with the empirical process. Thinking assignments may include activities like media critiques, short answer "how could this apply to the real-world" brainstorms, design-your-own-experiment plans, and more.

Inside each week's Canvas module, you will find specific instructions for that week's thinking assignment. Your best bet for preparation is to keep current on the assigned readings and lecture materials.

Collaboration assignments (each week). We will work together to actively build knowledge. We will develop our skills as consumers of psychological research and also get more savvy about tools for being producers of research. Collaboration assignments are designed to help you and your colleagues apply each week's lessons in concrete scenarios. Collaboration assignments will be clearly described in each week's Canvas module.

Quizzes (four total). Quizzes will consist of conceptual and applied multiple-choice questions. Evidence shows that taking quizzes is a very good way to make learning 'stick'. Four quizzes will be posted and announced on Canvas throughout the quarter. Quizzes will remain available through Wednesday June 14 11:59 PM PDT. You can complete the quizzes at any time. They are open book, open notes. They will not have time limits. If you get answers wrong, you can re-take the quiz. You must complete each quiz on your own. Your best bet is to complete each quiz soon after it is posted because course knowledge and skills build on each other -- you can learn from quiz feedback and mastery in order to prepare for subsequent course content.

Research paper. A key objective of this course is to learn how to be an informed consumer of psychological research. Throughout the term, you will gain practice critically evaluating empirical claims, connecting these claims to data, and communicating about psychological research. In your research paper, you will show off everything you've learned. Detailed instructions will be posted on Canvas.

FINAL LETTER GRADE

Final letter grades will be assigned according to the table on the right. "Points" is calculated by adding up the points you earn on thinking assignments, collaboration assignments, quizzes, and the paper.

grade	points
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

Final letter grades will be a sum of these points:

- Thinking assignments (10 total): 50 points (each assignment = 5 points)
- Collaboration assignments (10 total): 10 points (each collaboration = 1 point)
- Quizzes (4 total): 20 points (each quiz = 5 points)
- Paper: 20 points

ACADEMIC HONESTY

The short version: Don't cheat. Don't plagiarize. If you are unsure, please ask me.

As a member of the university community you are expected to be honest and forthright in all of your academic endeavors. To falsify the results of one's research, to present the words, ideas, data, or work of another as one's own, or to cheat on an examination corrupts the essential process by which knowledge is advanced.

All work submitted in this course must be your own and produced exclusively for this course. It is considered cheating if you obtain any kind of information about answers and solutions to the work in this course from any non-intended source (including chat bots, GPT-4, etc.) or if you transfer such information to others. It is also considered cheating if you lie to Dr. Fausey or our Graduate Experts about any academic work in this course. Here are the expectations for the work in our course. It is considered cheating if you violate these expectations:

Thinking assignments: You may review course readings and lecture materials with your student colleagues, but your assignments must be your own work.

Collaboration assignments: You will collaborate with your student colleagues and explicitly state who you worked with to produce the submitted work.

Quizzes: You may use the textbook, lecture materials, 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. We are operating on the honor system here -- you can retake quizzes as often as you'd like so help yourself out and give learning your best shot.

Paper: You may discuss ideas and/or get feedback on a draft with student colleagues, but your submitted writing must be your own work.

Another form of academic misconduct is plagiarism, or using someone else's ideas and words without appropriate citation on a written assignment. The use of sources (ideas, quotations, paraphrases) must be properly acknowledged and documented. Do not copy from Wikipedia, other college students' papers, scholarly articles, websites, and a host of other sources. In this course, all submitted work will be checked by VeriCite. Do not attempt plagiarism because you will be caught. Plagiarism is academic misconduct and cases of plagiarism will be treated as such.

Please note that it is mandatory for instructors to report suspected academic misconduct to the Office of Student Conduct. Violations will be taken seriously and are noted on student disciplinary records. For more information about academic honesty, see the University Student Conduct Code at dos.uoregon.edu/conduct.

INSTRUCTION PHILOSOPHY

Our motto in this course is: Follow the data. "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.

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 that knowledge is created in the field. The course emphasizes 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 & 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 prep for honing data analysis skills in PSY 302. In PSY 303, you will use the skills you gained in PSY 301 & PSY 302 to design, implement, analyze, draw conclusions from, write up, and present scientific research in psychology.

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. The workload will be relatively steady throughout the term, as we build skills through regular assignments and consolidate knowledge through quizzes and a research paper.

TITLE IX

Dr. Fausey is a student-directed employee. For information about 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 at: safe.uoregon.edu, respect.uoregon.edu, titleix.uoregon.edu, aaeo.uoregon.edu, contact the non-confidential Title IX office (541-346-8136), AAEO office (541-346-3123), Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help. Dr. Fausey is a mandatory reporter of child abuse. Please find more information at hr.uoregon.edu/policies-leaves/general-information/mandatory-reporting-child-abuse-and-neglect/presidents-message.

ACCESSIBLE EDUCATION

If you have a documented disability and anticipate needing accommodations in this course, please notify Dr. Fausey 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 aec.uoregon.edu.

ACCOMMODATION FOR RELIGIOUS OBSERVANCES

The University of Oregon respects the right of all students to observe their religious holidays, and will make reasonable accommodations, upon request, for these observances. If you need to miss a class period this term because of a religious obligation or observance, please fill out the Student Religious Accommodation Request form (<https://registrar.uoregon.edu/sites/registrar2.uoregon.edu/files/pdf/form-religious-accommodation-request.pdf>) and send it to Dr. Fausey by the end of Week 2 so we can make arrangements in advance.

LAND ACKNOWLEDGEMENT

We acknowledge that we are here on Kalapuya Iliŋi – the traditional Indigenous homeland of the Kalapuya people, who were here first and who will always be here. It is a place where Indigenous languages and multilingualism once thrived. We acknowledge and honor the traditional stewards of this land.

FAQ

What if I miss an assignment deadline?

Your best strategy is to keep up with each weekly module. You have one deadline per week -- please do your best each Sunday to 1) submit your weekly thinking assignment, 2) submit your weekly collaboration assignment, and 3) make a plan for the upcoming week.

If you submit an assignment after its due date, your grade on the assignment will be reduced by 50%. This is true whether you submit your assignment 1, 2, 3, 4, or 5 days late. After 5 days, late work will no longer be accepted. Your best strategy is to submit assignments on time.

**One-time-grace-period for thinking assignments: Life happens. If for any reason (e.g., illness, family emergency, you slept through your alarm for 24-hours, etc.) you find yourself unable to complete a thinking assignment on time, you may use a one-time-grace-period in the following way:*

- (1) Email Dr. Fausey as soon as you are aware of the issue, and no later than one day past the original assignment due date.*
- (2) Dr. Fausey will create an alternate assignment for you, that you must complete within the stated timeframe.*
- (3) Dr. Fausey will also create an additional assignment for you (e.g., read a paper and write a one-page critical discussion of it), that you must complete within the stated timeframe.*

Note: You must email Dr. Fausey in a timely fashion, and complete BOTH the alternate assignment AND the additional assignment in a timely fashion, in order to have the opportunity to earn up to the original number of points for your missed assignment. You may take advantage of this policy a maximum of one time during the entire course. This policy may not be applied to quizzes, collaboration assignments, or the research paper.

Do you grade on a curve? Offer extra credit?

No, I do not grade on a curve. No, I do not offer extra credit. Your best strategy is to focus your energy on doing your best on all of your work.

Do you take attendance?

No, I do not take attendance. I expect you to make responsible decisions about managing your health and your time. Please make a plan each Sunday for how you will tackle our course's lessons and assignments.

DISCLAIMER

This syllabus is an outline of the course and its policies, which may be changed for reasonable purposes during the quarter at the instructor's discretion. You will be notified via Canvas if any changes are made to this syllabus and an updated syllabus will be provided on Canvas.

COURSE SCHEDULE

MODULE	Tues/Thurs Classes	DESCRIPTION	READING
MODULE 1	April 4 & 6	Welcome to Scientific Thinking!	Ch. 1 & 2
MODULE 2	April 11 & 13	Variables & Claims	Ch. 3
MODULE 3	April 18 & 20 *Note: Dr. Chanel Meyers leads class collaboration discussion on April 18	Validities	Ch. 3
MODULE 4	April 25 & 27	Measurement & Reliability	Ch. 5 & 6 & 7
MODULE 5	May 2 & 4	Associations	Ch. 8
MODULE 6	May 9 & 11	Simple experiments	Ch. 10
MODULE 7	May 16 & 18	I spy a confound	Ch. 11
MODULE 8	May 23 & 25	Factorial Experiments	Ch. 12
MODULE 9	May 30 & June 1	Catch-up week! Stay tuned	Stay tuned
MODULE 10	June 6 & 8	Ethics & Generalization	Ch. 4 & 14