

PSY 980RB “ HOW TO REASON BETTER

HARVARD UNIVERSITY

FALL 2021 “ Fridays 12–2pm “ William James 1465

[UPDATED 11/6; Subject to Change]

Instructor

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Office hours: Mondays 3–4pm EST via Zoom or by appointment

Course website. <https://canvas.harvard.edu/courses/90788>

Zoom (for Office Hours). <https://harvard.zoom.us/my/adambear>

Course description. Psychology has documented numerous ways in which people reason suboptimally and make poor decisions. But how can we use this research “ along with research from philosophy, economics, and statistics “ to correct these mistakes and improve inference? This course will introduce you to a framework for avoiding the most well-known pitfalls of thought and for properly updating your beliefs on the basis of evidence. Special emphasis will be placed on applications in everyday life. Students will come away from the course with a new toolkit for spotting flawed arguments in media, politics, law, and business interactions; and for better evaluating their own patterns of reasoning.

Course objectives. At the end of this course, I hope you will

- “have begun to learn a formal toolkit of logic, basic probability theory, and causal reasoning to help you solve simple problems
- “be better at critically evaluating claims and evidence presented in everyday life, on the Internet, and in other contexts
- “have a sense of how to approach more difficult prediction and decision problems in everyday life using imperfect strategies and heuristics
- “be able to apply some of what you have learned to scientific research
- “have improved your presentation and writing skills

Note that this course will prioritize the introduction of a breadth of methods and ideas without delving into too much depth about any one of them. I certainly don’t expect you to be an expert in probability theory or causal reasoning by the end of the class, but I want you to think more about these topics in your everyday life, so you can build better intuitions.

Prerequisites. The Psychology Department requires completion of Psychology 1 or equivalent (see <https://undergrad.psychology.fas.harvard.edu/introductory-course>) and at least one foundational course (see <https://undergrad.psychology.fas.harvard.edu/foundational-courses>).

Course materials. Most of the readings will be linked directly on the lab calendar or shared as PDFs on Canvas. You will, however, need to get access to the following book, which is available at the bookstore and is also on reserve at the Harvard library:

- Galef, J. (2021). *The scout mindset: Why some people see things clearly and others don’t*.

Mathematical (and other) formalism. Although no particular background in math or statistics is required or expected in this course, we will be using ideas from probability theory and statistics to aid in learning. Even if you’re not the kind of person who typically enjoys math, I intend to make this as accessible as possible and even (I hope) enjoyable. If you’re concerned about this part of the course, please feel free to reach out with any questions.

Slack. We will be using Slack as the primary mode of communication outside of the classroom. Please make sure you've joined the workspace from the [link](#) in Canvas and have familiarized yourself with the Desktop app. I encourage you to send me direct messages on the platform for short inquiries, though email is also fine. I will also be making announcements and sharing extra readings there.

Feedback. I value and encourage feedback about my teaching or anything else you would like to discuss. You can always reach out to me in the #feedback channel on Slack or by email. You can also use the anonymous [Google form](#) to send thoughts.

Overview of assignments. This course will not be graded on a curve, but rather will be scored out of 100 total possible points. Note that some assignments and level of attendance are required in order to pass the course, regardless of your final point total.

- **Attendance & participation (25 points).** You can earn up to two points for attending each class session. Each session (except the first) will begin with a short quiz. The quiz won't be graded for accuracy – its main function is for me to assess how I'm doing as an instructor – but it will earn you one attendance point for completion. Then, provided that you are engaged in class, you will earn your second attendance point. Your first attendance point out of 25 is free, so if you get two attendance points at each class session, you'll earn all 25 points. If you regularly attend class and are an active participant, I expect that it will be easy for you to earn all these points.
- **Reading responses (20 points).** For homework each week (except the first), you will be asked to make *two* separate paragraph-long comments in the #reading-responses channel on Slack. At least one of these posts should be an answer to a question I pose in the channel and should be completed by *Wednesday* at 11:59pm before the next week's Friday class. For your second post, you can either respond to another one of my questions or respond to a post from a classmate. This second post should be completed before class time on Friday. Each of these posts should demonstrate careful engagement with the readings, even though it is okay to express uncertainty in your views. You can earn a maximum of 2 points each week (1 point per response).
- **Mindset paper (20 points).** Around midterm (Monday 10/18), you will write a 4–6 page paper based on Julia Galef's book. You will reflect on an aspect of your life or the real world in which "soldier mindset" dominates, and you will discuss steps you could take to become more like a "scout." Further details about the project are provided in a [separate document](#) on Canvas.
- **Final project (35 points).** By the first Friday of exam period, 12/10, you will turn in a 10-page paper that will apply one or more of the ideas from the class to a research area or important public policy topic. This will be graded out of 30 points. You will also give a 10-minute presentation on your topic at the last class session (11/19), which is worth 3 points; and on Wednesday 11/10, you will need to submit a 1-2 paragraph project proposal (worth 2 points), which I will give feedback on. Further details about the project and presentation are provided in a [separate document](#) on Canvas.

COURSE CALENDAR		
(subject to change at discretion of instructor)		
Date	Topic	Readings

9/3	Introduction	Ritchie (2020) Rothman (2021) Sagan (1996) [Optional]
9/10	Scout Mindset	Galef: Part I CFAR Handbook : pp. 91â€“99 Stanovich & West (2008)
9/17	The Logic of Certainty	Manley: Ch. 4 Galef: Part II & III Greene: excerpt from <i>Moral Tribes</i>
9/24	The Logic of Uncertainty	Galef: Part IV & V Explore Seeing Theory Schwarz (2020), Ch. 2 [Optional]
10/1	Bayes' Rule	"Probability Review" notes Manley: Ch. 8 Knox & Mummolo (2020)
10/8	Assessing Evidence	Manley: Ch. 5 Cohen (1994) Ellenberg (2021) [+ blog post]
10/15	Generalization: Theory & Pitfalls	Manley: Ch. 6
10/22	Bounded Rationality	Watch: https://www.youtube.com/watch?v=-Lg7G8TMe_A Read <u>one</u> of these: Brighton & Gigerenzer (2015) Gigerenzer (2018)
10/29	Causation	Manley: Ch. 7 Cunningham : Ch. 1.2 & 1.3 Salganik et al. (2006)
11/5	The Logic of Decision Making	Manley: Ch. 10 Kahneman: Ch. 26, <i>Thinking Fast and Slow</i>

		Optional: Ariely : excerpt from <i>Predictably Irrational</i>
11/12	Practical Decision Making & Bounded Rationality	Pearson (2019) [Related Twitter Thread] [Optional: Aktipis et al. (2011)] Said (2018) Watch: Galef (2015)
11/19	Final Project Presentations	

Course policies.

- **Academic integrity.** You are expected to act in accordance with Harvard's standards for academic integrity (<https://honor.fas.harvard.edu/honor-code>). Please carefully review Harvard's standards for citing sources and avoiding plagiarism (<https://usingsources.fas.harvard.edu>).
- **Accessibility.** If you're eligible for academic adjustments or accommodations, please provide a letter from the Accessible Education Office (AEO) and speak with me privately by Friday, Sept. 17.
- **Collaboration.** You are encouraged to discuss the ideas and readings from this course with your peers in private or on Slack. It is also fine to exchange project ideas and useful readings. The assignments that you turn in, however, are expected to be written solely by you and to have resulted from your personal research. Please ensure that you've cited any books, articles, websites, etc. that contributed to this work. (You do not need to formally cite my lectures.) If anyone gave you feedback on your work, please acknowledge this in an "Acknowledgments" section at the end of your document.
- **Attendance.** Because this course is concentrated in only a single two-hour block each week with emphasis on activities and discussion, it is essential that you attend each session. Unexcused absences will result in a zero for that day's participation grade. (Note that because there are only 12 sessions, even a single absence can substantially hurt your grade.) You will be allowed one excused absence over the course of the semester, which "except in cases of a health or family emergency" requires 24-hours notice and my approval. For a planned absence to count as excused, you must have a clear conflict at the time of the class (e.g., an important job interview or religious holiday); being busy or needing to study for an exam are not sufficient. You will be asked to review the materials from the missed lecture and complete a make-up assignment. Finally, *in order to receive a passing grade for the course, you must attend at least 8 of the 12 class meetings, whether or not the absences are excused.*
- **Late work.** Reading responses that are not received in time will receive 0 out of 2 points except in cases of health or family emergencies documented by your Resident Dean. For the two bigger written assignments, you will be assessed a 10% penalty for every late day, up to five days. After five days, these assignments will no longer be accepted and you will receive a 0. *Note that you will not pass the class if you get a 0 on your final project.* Project presentations must be delivered on the day they are scheduled and will receive a 0 otherwise, except in cases of emergencies.

- **Etiquette.** In this course we may occasionally explore topics about which some students hold strong opinions. I ask that you always show respect for your classmates when commenting and be thoughtful about how other people who do not share your views may react. It is fine to express forceful opinions or emotions about what is being discussed, but ad hominem attacks on your classmates will not be tolerated. If you ever feel like I am doing a poor job moderating discussion or displaying sensitivity to difficult topics, please reach out to me anonymously at any time, and I will do my best to make adjustments. Also, if you would prefer to speak to somebody else about these issues, you may reach out at any time to Professor Jill Hooley (Director of Undergraduate Studies; jmh@wjh.harvard.edu) or Dr. Katie Powers (Associate Director of Undergraduate Studies; kpowers@fas.harvard.edu). Note that this policy applies to Slack discussion, as well.
- **Slack & Email.** I am generally very responsive to Slack messages and email between the weekday hours of 9am and 10pm. I will aim to respond to you within 12 hours on weekdays and 24 hours on weekends unless I say otherwise. If you don't hear from me within this timeframe, feel free to follow-up or come by my office.
- **Personal technology.** It has increasingly become the norm to read and take notes on computers or tablets rather than paper. For this reason, computers and tablets will be permitted for these activities. I ask that you turn off your device's Wi-Fi while in class to avoid distraction. (I know how tempting it is to check social media even if you are trying to pay attention.) I also ask that you refrain from using your phone except in cases of emergencies. If I notice that you are frequently violating this policy, I reserve the right to take away technology privileges or deduct a point from your attendance grade.