

Carnegie Mellon University

88-302 Behavioral Decision Making

Syllabus, Fall 2020

Last updated Sept 1, 2020

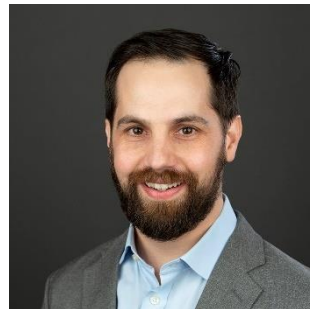
Course information

Class schedule: TTH 3:20 – 4:40 pm
 Location: Remote (Zoom) + on campus in room WEH 5409

Instructor: [Gretchen Chapman](#)
 Preferred pronouns: she, her, hers
 Please address me as: Gretchen or Professor Chapman
 Office: PH 224A, (412) 268-7380
 Student hours: Students drop in. No appt needed.
 Mondays 4:00 – 5:00 pm on Zoom &
 Thursdays 1:40 – 3:00 pm on Zoom
 In-person meetings by appointment
 E-mail: gchapman@andrew.cmu.edu



Head Teaching Assistant: [Dan Wall](#)
 Preferred pronouns: he, him, his
 Please address me as: Dan
 Student hours: Tuesdays 2:15-3:15 on Zoom
 E-mail: dwall@andrew.cmu.edu



Undergrad Teaching Assistant: Christina Li
 Student hours: by appointment
 Email: christi5@andrew.cmu.edu

Description

Behavioral decision making is the study of how people make decisions, in terms that can eventually help them to make better decisions. It draws together research from psychology, economics, and other fields such as marketing and management. Behavioral decision making delves into the cognitive processes that underlie our choices and extends to applications that range from managing potentially hazardous technologies, to public policy for encouraging healthier behavior, to techniques for making people happier and more honest.

This course covers behavioral theories of probabilistic inference, intuitive prediction, preference, and decision making. Topics include heuristics and biases in inference, prediction, and choice; decision making in social and moral domains; and methods for improving decision making. The course emphasizes the mutually reinforcing relationship between theory and application.

Objectives

The goal of this course is to provide students with both an understanding of the content of behavioral decision research as well as an understanding of some of the bigger picture questions of the discipline. What questions are we trying to answer, how do we go about answering them, and why do we use these methods? The course involves a mix of lecture and discussion and depends heavily on student input.

By the end of the course, students should be able to:

- Identify and discuss intelligently the major areas of research in the field of behavioral decision making
- Compare original scientific literature in decision science with popular press presentations of that research and critique each based on scientific method, accuracy, and accessibility.
- Use theoretical principles of decision science to design solutions to applied and policy-oriented issues.
- Defend and critique the research methods used in decision research.

Prior Knowledge

Before taking this course, students should have completed (a) 88-120 Reason, Passion, and (b) Cognition or Intro Psychology, or have an equivalent introductory-level background to Decision Science. In addition, student should have completed one of the approved statistical methods prerequisite courses.

How this Class Works

Each student will attend live class once per week. Section A students will attend in person on Tuesdays, and section B students will attend via Zoom on Thursdays. Please contact the instructor if you wish to change sections, as the in-person section can accommodate a maximum of 20 students. Section A students are welcome to attend the remote sessions when the need arises. Note that for the first week and for the weeks after Thanksgiving break, both sections meet on Zoom (still on their respective days). In addition to attending a live class session once per week for active learning exercises, students will also complete an asynchronous module on Canvas each week where they will read articles, listen to podcasts, watch recorded mini-lectures, contribute to discussion boards, and take short quizzes that will prepare them for the live class session activities.

Requirements

Points	Assignment (for due dates, see Canvas)
20	Class participation
80	Weekly reading quizzes (in asynchronous modules)
80	Homework assignments (6 assignments of 10 or 20 points each)
120	Essay assignments (30 points each x 4 essays)
100	Podcast project (four parts worth 5 + 10 + 15 + 70 points)
8	Extra credit (optional) subject pool participation

- **Attendance policy.** I enthusiastically encourage you to attend every class and to participate actively in discussions. You may attend either in person or remotely via Zoom. Your attendance will not directly affect your grade. This is so that you feel free to miss class if you are ill. However, attendance is not optional (i.e., you can't decide never to attend) because except in extreme circumstances, if you miss more than half of the class sessions will fail the course, regardless of performance on other

assignments. Also, in the past, higher attendance has been associated with better class performance. I don't know if that relationship is causal, but it might be.

- **Class participation.** This class is based on discussion and active learning, so your input is crucial to both your learning and the learning of your classmates. Try to address your comments to classmates (by name, if you can) rather than just to the professor. Participation represents actual engagement with the ideas, not just words spoken. As you go through the asynchronous modules, you're encouraged to note questions or ideas that you can bring to class. Note that scoring class participation is by necessity somewhat subjective, and your tolerance of that subjectivity is appreciated.
- **Reading quizzes.** Each week as part of the asynchronous material you will complete some brief online quizzes, discussion boards, and other brief activities to help you engage with the reading assignments and recorded lectures.
- **Homework assignments.** Spread throughout the semester will be several homework assignments that help to reinforce concepts taught.
 - **Media example.** One homework assignment is the media example. We'll start each class with one or two 3-minute presentations from students. Please sign up for a date to do yours. You should find an example in the media (advertisement, newspaper story, non-scholarly website, etc.) that illustrates a principle of decision making.
- **Essays.** You will write 4 take-home, open-book essays. These essays allow you to integrate principles discussed in class and apply them to new situations.
- **Course podcast project.** During this course we will listen to a number of podcasts that present decision research in an accessible way, and we will also read scientific journal articles that present the original reports of decision science studies. As your course project you will create your own 5-10 minute podcast that presents the findings of a decision research journal article. This project has several parts:
 - **Select your journal article** from the list of suggested articles or find your own.
 - **Read and understand the article.** You'll complete a summary sheet to demonstrate your understanding.
 - **Podcast outline.** You'll outline the content for your podcast
 - **Final podcast product.**
- **Extra credit.** You can earn up to 8 points of extra credit by participating in up to 2 hours of experiments on the CBDR human subject pool. 4 points per hour. This is optional.

Grading

Total Points	Course Grade
360 - 400	A
320 - 359	B
280 - 319	C
240 - 279	D
239 or less	F

Your grade in this course reflects your scores on the assignments, not your worth as a person. It is but a small part of your academic record which in term is only a partial indicator of all your skills, talents, and accomplishments. I work hard to create assignments such that your score will reflect what you are learning in this class, but all assessments entail measurement error. I expect you to work hard in this class, but not at the expense of your health or well-being. I encourage you to put grades in perspective and am happy to discuss your grades and performance with you.

Contacting the Professor

You can reach me via the email listed at the top of this syllabus. If you receive an email from me, please confirm it is actually from me before opening it, clicking on any hyperlinks, or downloading attachments. Check that the email address it is sent from matches my andrew.cmu.edu address. See [here](#) for information on phishing schemes.

Class readings and audio/visual assignments

All readings will be posted on Canvas. Some of the “reading” assignments are podcasts or videos. All readings and asynchronous class activities are required and should be completed before Tuesday at 3 pm on the week they are assigned.

Policy on electronic devices

Cell phones, laptops, and tablets are welcome in the in-person classroom but must be used for class activities. Please silence your phone at the beginning of class and put it away except when using it for a class activity. You may not use devices for social media, texting, or anything unrelated to class activities.

Policy on late assignments and extensions

If you submit an assignment late, the score will be reduced according to an exponential decay function:

$$S_l = S_o \delta^t$$

Where S_l = the late-adjusted score, S_o = the original score (with no late penalty), $\delta = 0.97$, and t = the number of days late. For example, if an assignment with an original score of 95/100 was submitted 3 days late, the late-adjusted score would be $95 \times 0.97^3 = 86.7$. This formula is intended to encourage you to submit assignments on time while also communicating that a late assignment is better than none at all. Assignments submitted after the end of final exam period will result in a score of 0 unless you’ve made other arrangements.

Extensions are rarely granted, but if you require one, place your request as soon as you become aware of the information that warrants the extension. Requests placed within 7 days of the due date will be denied unless critical new information has come to light.

- Appropriate reasons for an extension: serious illness, hospitalization, family tragedy
- Inappropriate reasons for an extension: job interviews, stress, poor planning, assignments from other classes due near the same time (you can turn in my assignment early)
- Great reasons to plan well in advance: reduce stress, budget time across assignments from other classes due near the same time

Students with disabilities

If you have a disability and are registered with the Office of Disability Resources, I encourage you to use their online system to notify me of your accommodations and discuss your needs with me as early in the semester as possible (ideally in within the first two weeks of the semester). I will work with you to ensure that accommodations are provided as appropriate. Even if you think you might not need to make use of your accommodation for this class, it is a good idea to tell me about it in case the accommodation become necessary later in the semester. If you suspect that you may have a disability and would benefit from accommodations but are not yet registered with the [Office of Disability Resources](#), I encourage you to contact them at access@andrew.cmu.edu or 412-268-2013.

Campus resources

Your performance in this class may be enhanced by taking advantage of these campus resources:

- For assistance with the written or oral communication assignments in this class, visit the [Global Communication Center](#) (GCC) is a free service, open to all students, providing assistance with written or oral communication assignments.
- The office of [Student Academic Success Center](#) provides peer tutoring and academic coaching
- The [Intercultural Communications Center](#) (ICC) offers services and resources to students from non-US cultural backgrounds.
- The [Center for Student Diversity and Inclusion](#) provides support for first generation college students, LGBTQ+ students, students from under-represented race and ethnic groups, transgender and non-binary students, and women.

Academic integrity

Students are expected to respect the integrity of their work as well as that of their classmates. Please refer to the [University Policy](#) for further detail. Evidence of cheating or plagiarism will be referred to the Department Head and/or the College. Depending upon the individual violation, students could face penalties ranging from failing the assignment to failing the class. All violations will be reported through the University's [Academic Disciplinary Action Procedures](#) for Undergraduate Students, which is published in The [WORD](#) student handbook. To learn more about the disciplinary actions that can result from dishonesty, refer to the [Office of Community Standards & Integrity](#). In order to deter and detect plagiarism, online tools (e.g., [Turnitin](#)) and other resources are used in this class.

The instructor may provide study guides and sample questions from previous exams to help you prepare for the exams or assignments in this class. Do not accept or use copies of previous exams, problem sets, or other assignments from this course that you receive from any source other than the instructor. Use of previous course materials from any outside source (e.g., fraternity file or other students) will be considered a violation of academic integrity, and if you are found to have obtained or distributed such materials, you will be subject to disciplinary actions.

The instructor may provide lecture materials such as copies of lecture slides or recorded lectures posted to the Canvas course site. These materials are the intellectual property of

the instructor and are provided for use only by students registered for the course in the current semester. Do not share these materials with people outside the current class or post them to online repositories such as Course Hero. If you are found to have shared course materials inappropriately, you will be subject to disciplinary actions.

Policy on recording

Classroom activities may be recorded by a student for the personal, educational use of that student or for all students presently enrolled in the class only, and may not be further copied, distributed, published or otherwise used for any other purpose without the express written consent of Prof. Chapman. All students are advised that classroom activities may be taped by students for this purpose. Some class sessions (on Zoom or in person) will be recorded by the professor for posting on the Canvas site. Course materials including recordings of class sessions that are posted to the Canvas site are for the use solely of CMU students currently enrolled in this course.

All course lectures, slides, assignments, and recordings of course sessions are provided solely for educational use by students enrolled in the course and may not be distributed to any other person or posted on the internet without the express written permission of the course instructor.

Diversity Statement

We must treat every individual with respect. The CMU community is diverse in many ways, and this diversity is fundamental to building and maintaining an equitable and inclusive campus community. Diversity can refer to multiple ways that we identify ourselves, including but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Each of these diverse identities, along with many others not mentioned here, shape the perspectives our students, faculty, and staff bring to our campus. We, at CMU, will work to promote diversity, equity and inclusion not only because diversity fuels excellence and innovation, but because we want to pursue justice. We acknowledge our imperfections while we also fully commit to the work, inside and outside of our classrooms, of building and sustaining a campus community that increasingly embraces these core values. Each of us is responsible for creating a safer, more inclusive environment.

Unfortunately, incidents of bias or discrimination do occur, whether intentional or unintentional. They contribute to creating an unwelcoming environment for individuals and groups at the university. Therefore, the university encourages anyone who experiences or observes unfair or hostile treatment on the basis of identity to speak out for justice and support, within the moment of the incident or after the incident has passed. Anyone can share these experiences using the following resources:

- [Center for Student Diversity and Inclusion](mailto:csdi@andrew.cmu.edu): csdi@andrew.cmu.edu, (412) 268-2150
- [Report-It](https://reportit.net) online anonymous reporting platform: reportit.net username: *tartans* password: *plaid*

All reports will be documented and deliberated to determine if there should be any following actions. Regardless of incident type, the university will use all shared experiences to transform our campus climate to be more equitable and just.

Take care of yourself

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep, and taking some time to relax. This will help you achieve your goals and cope with stress.

All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus, and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call 412-268-2922 and visit their website at <http://www.cmu.edu/counseling/>. Consider reaching out to a friend, faculty or family member you trust for assistance getting connected to the support that can help.

If you or someone you know is feeling suicidal or in danger of self-harm, call someone immediately, day or night:

- [CaPS: 412-268-2922](tel:412-268-2922)
- [Resolve Crisis Network: 888-796-8226](tel:888-796-8226)
- If the situation is life threatening, call the police
 - On campus: CMU Police: 412-268-2323
 - Off campus: 911

If you have questions about this or your coursework, please let me know.

Course schedule

Week 1 Introduction (What makes decisions hard? What are heuristics?)

TED talk: [Ruth Chang](#)
(Kahneman, 2003)
(Halpern & Miller, 2020)

Week 2 Reasoning

Hidden Brain Podcast: [What are the odds?](#)
(Kahan et al., 2012)
Hidden Brain Podcast: [Facts aren't enough](#)

Week 3 Evidence

[Starr \(2019\) AAAS Science](#)
TED talk: [Lindsay Malloy](#)
Cochrane webpage on [sensitivity & specificity](#)

Week 4 Judgment

Choiceology podcast: [Data for the win](#)
[Fivethirtyeight calibration page](#)
(Moore & Schatz, 2017)

Week 5	Sports Forecasting
	Walker (2018) New York Times May (2013) Scientific American Choiceology podcast: Hitting your number (Pope & Simonsohn, 2011)
Week 6	Risky Choice
	Wikipedia page on EUT (Kahneman & Tversky, 1984)
Week 7	Money
	Hidden Brain podcast: For sale by owner (Shampanier, Mazar, & Ariely, 2007) Ariely video Planet Money Podcast: Cost of Free Doughnuts
Week 8	Scarce Resources
	(Li, Vietri, Galvani, & Chapman, 2010) (Colby, DeWitt, & Chapman, 2015) Frakt (2020 NY Times) Miller (2020) Hastings Report
Week 9	Happiness & Awards
	(Hsee & Hastie, 2006) Choiceology podcast: Happiness (Frey & Gallus, 2014) Freakonomics podcast: Better than cash
Week 10	Discrimination
	Hidden Brain podcast: In the Air We Breathe (Milkman, Akinola, & Chugh, 2012)
Week 11	Giving
	Leonhardt (2008, NYTimes Magazine) (Small, Loewenstein, & Slovic, 2007) (Galak, Givi, & Williams, 2016) Vohs (2018) Washington Post
Week 12	Morality
	(Merritt, Effron, & Monin, 2010) TED talk: Molly Crockett (Shalvi, Gino, Barkan, & Ayal, 2015) TED talk: Dan Ariely

Week 10 Apologies

Freakonomics podcast: [Optimize your apology](#)
 This American Life podcast: [Sorry, Not Sorry](#)

Week 14 Temptation & Overload

[Duckworth, Milkman, & Laibson \(2019\)](#)
 Freakonomics podcast: [When willpower isn't enough](#)
[\(2017\) London Business School Review](#)
 TED talk: [Barry Schwartz](#)

Week 15 Changing Behavior

(Milkman, Chugh, & Bazerman, 2009)
 (Redelmeier & Cialdini, 2002)
 (Roberto, 2020)
 Chapman (2016) NEJM Catalyst
 Hidden Brain: [Summer Melt](#)

Assigned journal article readings

(See hyperlinks above and Canvas for other assigned readings, videos, and podcasts)

-
- Colby, H., DeWitt, J., & Chapman, G. B. B. (2015). Grouping Promotes Equality: The Effect of Recipient Grouping on Allocation of Limited Medical Resources. *Psychological Science*, 26(7). <https://doi.org/10.1177/0956797615583978>
- Frey, B. S., & Gallus, J. (2014). The power of awards. *Economists' Voice*, 11(1), 1–5. <https://doi.org/10.1515/ev-2014-0002>
- Galak, J., Givi, J., & Williams, E. F. (2016). Why Certain Gifts Are Great to Give but Not to Get: A Framework for Understanding Errors in Gift Giving. *Current Directions in Psychological Science*, 25(6), 380–385. <https://doi.org/10.1177/0963721416656937>
- Halpern, S. D., & Miller, F. G. (2020). Opinion Cognitive Bias and Public Health Policy During the COVID-19 Pandemic. *JAMA - Journal of the American Medical Association*, E1–E2. <https://doi.org/10.7326/m20-2071>
- Hsee, C. K., & Hastie, R. (2006). Decision and experience: Why don't we choose what makes us happy? *Trends in Cognitive Sciences*, 10(1), 31–37. <https://doi.org/10.1016/j.tics.2005.11.007>
- Kahan, D. M., Peters, E., Wittlin, M., Slovic, P., Ouellette, L. L., Braman, D., & Mandel, G. (2012). The polarizing impact of science literacy and numeracy on perceived climate change risks. *Nature Climate Change*, 2(10), 732–735. <https://doi.org/10.1038/nclimate1547>
- Kahneman, D. (2003). A perspective on judgment and choice: mapping bounded rationality. *The American Psychologist*, 58(9), 697–720. <https://doi.org/10.1037/0003-066X.58.9.697>
- Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, 39, 341–350. <https://doi.org/10.1037/0003-066X.39.4.341>

- Li, M., Vietri, J., Galvani, A. P. A. P., & Chapman, G. B. G. B. (2010). How do people value life? *Psychological Science : A Journal of the American Psychological Society / APS*, 21(December 2009), 163–167. <https://doi.org/10.1177/0956797609357707>
- Merritt, A. C., Effron, D. a., & Monin, B. (2010). Moral Self-Licensing: When Being Good Frees Us to Be Bad. *Social and Personality Psychology Compass*, 4, 344–357. <https://doi.org/10.1111/j.1751-9004.2010.00263.x>
- Milkman, K. L., Akinola, M., & Chugh, D. (2012). Temporal Distance and Discrimination: An Audit Study in Academia. *Psychological Science*, 23(7), 710–717. <https://doi.org/10.1177/0956797611434539>
- Milkman, K. L., Chugh, D., & Bazerman, M. H. (2009). How Can Decision Making Be Improved? *Perspectives on Psychological Science*, 4, 379–383. <https://doi.org/10.1111/j.1745-6924.2009.01142.x>
- Moore, D. A., & Schatz, D. (2017). The three faces of overconfidence. *Social and Personality Psychology Compass*, 11(8), 1–12. <https://doi.org/10.1111/spc3.12331>
- Pope, D., & Simonsohn, U. (2011). Round Numbers as Goals. *Psychological Science*, 22(1), 71–79. <https://doi.org/10.1177/0956797610391098>
- Redelmeier, D. A., & Cialdini, R. B. (2002). Problems for clinical judgement: 5. Principles of influence in medical practice. *Cmaj*, 166(13), 1680–1684.
- Roberto, C. A. (2020). How psychological insights can inform food policies to address unhealthy eating habits. *The American Psychologist*, 75(2), 265–273. <https://doi.org/10.1037/amp0000554>
- Shalvi, S., Gino, F., Barkan, R., & Ayal, S. (2015). Self-Serving Justifications: Doing Wrong and Feeling Moral. *Current Directions in Psychological Science*, 24(2), 125–130. <https://doi.org/10.1177/0963721414553264>
- Shampanier, K., Mazar, N., & Ariely, D. (2007). Zero as a Special Price: The True Value of Free Products. *Marketing Science*, 26(6), 742–757. <https://doi.org/10.1287/mksc.1060.0254>
- Small, D. A., Loewenstein, G., & Slovic, P. (2007). Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims. *Organizational Behavior and Human Decision Processes*, 102, 142–153. <https://doi.org/10.4324/9781849776677>