

# PHIL 1555: Rationality

Spring 2022

Lecture: T/Th, 4–5:15pm

Classroom: 119 Cathedral of Learning

Office: 1029G CL / <https://pitt.zoom.us/j/4971426138>

Professor: Kevin Dorst

kevindorst@pitt.edu

Office Hrs: Wed 4–5pm; by appt.

**Class Description:** How rational are people? Some bits of cognitive science suggests we're surprisingly foolish; other bits suggests we're amazingly smart. What should we make of these competing pictures?

Answering this question requires combining both normative and descriptive methods: we need to know how rational people *would* reason, as well as how real people *do* reason. This course will begin with the normative, and then bring it to the descriptive. We'll spend the first half of the course learning the basics of Bayesian theories of rationality. (No prior mathematics required.) We'll then use those normative tools to help think through the proper interpretation of a variety of empirical results that have been taken to demonstrate human irrationality. For example: how rational is hindsight bias, sunk-cost reasoning, the gambler's fallacy, conformity, polarization, and so on?

**Course Goals:** Addressing these questions involves combining mathematical reasoning with philosophical reflection. There's an art to doing this well. We'll try to learn it.

**Readings:** All readings will be made available on Canvas in the "Files" section:

<https://canvas.pitt.edu/courses/146459/files/folder/Readings>

**Grading:** Your grade will be determined by attendance and participation (15%), 3 problem sets (45%), and a final paper (40%).

**Problem sets (45%).** You will be given problem sets at least 1.5 weeks before they are due. They will be drawn from the Titelbaum textbook (provided online), and will consist in both mathematical and conceptual questions. If necessary, grades may be curved (up only). No prior mathematics or logic are required (though logic will make it easier), but **you must be willing to work at it.**

Working with others is a good idea, and you're encouraged to ask questions of each other on the Canvas discussion boards. But you must write up your answers on your own. (If you've copied your answers, I'll be able to tell—and that will be a big problem.)

**Final paper (40%).** You will write a roughly 1500-word (5–6 page) final paper in response to one of the readings from Part II of the course. Paper prompts will be distributed a month before the deadline.

**Attendance/participation (15%).** Attendance is mandatory. This will be a partially discussion-based class, so to receive full participation credit you must also contribute at least semi-regularly. There are many ways to do this—talking during or after class, emailing questions before class, writing questions on the Canvas discussion board, etc.

## Course Policies:

**Announcements.** I'll send class communications via announcements on Canvas, so make sure you've set things up to receive notifications.

**Late work.** Late work will be marked down 1/3 of a letter grade for each day late (a B+ becomes a B, etc.). Problem set answer-keys will be provided 1 week after the due date, so **problem-sets turned in after this will receive a zero.**

**Academic Integrity.** This is serious. Academic integrity violations will not be tolerated. Evidence of dishonesty will be seriously pursued, and confirmation that plagiarism has occurred will result in an “F” for the course and notification of the undergraduate dean, with further consequences (such as expulsion) on the table. You are responsible for knowing what counts as plagiarism. The short, sweet version: your work must be your own; any words that are not your own must be in quotes with a proper citation; any ideas that are not your own must be clearly cited. See <https://www.provost.pitt.edu/faculty/academic-integrity-freedom/academic-integrity-guidelines>. Please reach out to me if you have any questions. Asking beforehand is never an issue.

**Disability Accommodations.** If you have a disability that requires special accommodations or other classroom modifications, please reach out to me about it. You must notify both me and Disability Resources and Services no later than the second week of term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call 412-648-7890 to schedule and appointment. The office is open virtually; please visit <https://www.diversity.pitt.edu/disability-access/disability-resources-and-services> for more information and to apply for an accommodations.

**Covid.** If you or a loved one gets sick, and as a result you start to fall behind on the course, the best approach is to email me about it as soon as possible so that we can construct a plan for catching up, getting you access to the handouts, etc.

### **Self-Care and Well-Being**

College is hard. All the more so during a pandemic. So, please, get into the habit of building self-care into your schedule—whether it’s in the form of exercise, time talking to friends/family, or even just to relax. Do it! You’ll find that you are much more productive if you do.

Pitt also has resources to help. If you or anyone you know experiences overwhelming academic stress, persistent difficult feelings and/or challenging life events, please seek support seek support. In addition to reaching out to friends and loved ones, consider connecting with a faculty member you trust for assistance connecting to helpful resources. The University Counseling Center is also here for you. You can call 412-648-7930 at any time to connect with a clinician.

If you or someone you know is feeling suicidal, please call the University Counseling Center at any time at 412-648-7930. You can also contact Resolve Crisis Network at 888-796-8226. If the situation is life threatening, call Pitt Police at 412-624-2121 or dial 911.

# Schedule

## I. Rationality under uncertainty

- 1/11 Introduction, Gershman pp. 1–6  
Problem set 1 distributed
- 1/13 Degrees of belief, Titelbaum 2021, Ch. 1
- 1/18 Probability, Titelbaum 2021, §§2.1–2.2
- 1/20 Probability, Titelbaum 2021, §§2.3–2.4
- 1/25 Catch-up/review.
- 1/27 Conditional Probability, Titelbaum 2021, §§3.1  
**Problem set 1 due at 11:59pm on Canvas (upload a pdf)**
- 2/1 Conditional Probability, Titelbaum 2021, §§3.2  
Problem set 2 distributed
- 2/3 No class. (I'm traveling. Maybe.)
- 2/8 Conditionalization, Titelbaum 2021, §§4.1–2
- 2/10 Conditionalization, Titelbaum 2021, §§4.3
- 2/15 Catch-up/review.
- 2/17 Subjective vs. Objective Bayesianism, Titelbaum 2021, §§5.1  
**Problem set 2 due at 11:59pm on Canvas (upload a pdf)**
- 2/22 Deference principles, Titelbaum 2021, §§5.2–3  
Problem set 3 distributed
- 2/24 Decision Theory, Titelbaum 2021, §§7.1–7.2
- 3/1 Decision Theory, Titelbaum 2021, §§7.3
- 3/3 Catch-up/review.
- 3/8 No class (spring break)
- 3/10 No class (spring break)
- 3/15 Catch-up/review

## II. Human (ir)rationality

- 3/17 Hindsight bias, Hedden 2019  
**Problem set 3 due at 11:59pm on Canvas (upload a pdf)**
- 3/22 The Gambler's Fallacy,  
[https://www.kevindorst.com/stranger\\_apologies/the-gamblers-fallacy-is-not-a-fallacy](https://www.kevindorst.com/stranger_apologies/the-gamblers-fallacy-is-not-a-fallacy)  
(skip the appendices)
- 3/24 The sunk cost fallacy, Hastie and Dawes, Ch. 2.
- 3/29 **Virtual class:** The sunk cost fallacy, Doody 2020  
<https://pitt.zoom.us/j/97927440141>  
**Paper topics distributed.**
- 3/31 Motivated ignorance, Kinney and Bright 2021
- 4/5 **No class** (I'm traveling, unexpectedly)
- 4/7 Conformity, Easley and Kleinberg 2010, Ch. 16

4/12 **No class** (I'm traveling)

4/14 **Virtual class:** The explore-exploit tradeoff, Gopnik 2020

<https://pitt.zoom.us/j/99023403002>

4/19 Polarization, Nielsen and Stewart 2018, Part 1 (read only pages 1–10)

4/21 Polarization, Kelly 2008

4/25 **Final papers due at 11:59pm.** (No class, of course.)