

Syllabus, Introduction to Critical Thinking

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1 Overview

While every class aims at improving your thinking in some sense, this class is meant to improve it *generally*—in your everyday life, in your other subjects, and anywhere else you can think of. We'll go through what good critical thinking involves, we'll practice it, and we'll see where it most often goes wrong and why it happens when it does. Some of this will be academic in the sense that you'll be learning things about thinking; but the hope is that even that will be helpful. Quite a lot of the course will be devoted to practice, too, practice applying reasoning techniques that we learn, and practice avoiding the common pitfalls we identify. By the end of the course, the student should expect to understand the basics of formal logic, probability, and practical reasoning (decision theory).

2 Prerequisites

There are no prerequisites!

3 Responsibilities and Grades

3.1 Participation

Because this is an extremely skills-based course, participation is crucial. Most fundamentally that means attendance at lecture and discussion sections is expected [assuming that is the structure of the course]; please let me know if you have to be absent on any particular day. In class, you will be expected to have done the reading and to participate in whatever activities we do, and to ask questions—in class or by email, if that's more comfortable for you—whenever there's something you don't understand. This will count for 30% of your grade.

3.2 Problem Sets

This course will have *four* problem sets of increasing length, worth the following percentages:

1. 10% of your grade

2. 15% of your grade
3. 20% of your grade
4. 25% of your grade

The aim here is to give you time and feedback in order to get you used to the format and the expectations. Since life is often collaborative, these can, if you want, be collaborative, too; but please list all collaborators on all your problem sets!

I will also occasionally give you problems on the class forums outside of the problem set structure; it will help your participation grade to answer them, or to propose others to your classmates!

4 Books

We will be following the course laid out in Manley, *Reason Better: An Interdisciplinary Guide to Critical Thinking*, available for free at <https://app.tophat.com/e/455176/>. But we'll also have supplementary readings drawn from philosophy and other places, too.

5 Schedule

1. Chapter 1, Reasoning. — General features of reasoning, how it differs from other kinds of thinking, and why it's important.
Additional reading: Arpaly and Schroeder, In Praise of Desire, section 1.1, "The Nature of Deliberation"
2. Chapter 2, Mindset. — What goes into being the sort of person who inquires successfully? What are the habits and personality traits involved?
Additional reading: Plato's Apology, and selections from Gopnik, How Babies Think and Duckworth, Grit: The Power of Passion and Perseverance.
3. Chapter 3, Clarity. — What are the components of a thought, of a sentence, or of an argument, and how can we make these things as clear and explicit as possible? Are there limits to clarity and explicitness?
Additional reading: Star Trek: The Next Generation, "Darmok", and selections from Grice, "Logic and Conversation".
4. Chapter 4, Entailment. What is it for a conclusion to deductively follow from some premises? We'll look at the basics of propositional logic.
Additional reading: Carroll, "What the Tortoise Said to Achilles", and Prior, "The Runabout Inference Ticket".

5. Chapter 5, Evidence. — What is evidence for what? What would it mean to follow one's evidence, and to apportion one's beliefs to the evidence? We'll also discuss mass communication of evidence by, e.g., the news media.
Additional reading: Selections from Twohey and Cantor, She Said, and Mukerji, "What Is Fake News?"
6. Chapter 6, Generalizations. What is a good statistical inference, and especially when are we in a position to conclude that every member of some group has some property?
Additional reading: Selections from Spiegelhalter, The Art of Statistics, and Leslie, "The Original Sin of Cognition"
7. Chapter 7, Causes. Some events correlate with other kinds of events; when does correlation become causation, and how could we tell?
Additional readings: Selections from Hiltz, Smokescreen: The Truth Behind the Tobacco Industry Cover-Up.
8. Chapter 8, Updating. When we get evidence, how should we change our beliefs to reflect the probability of the things we're interested in, given the new evidence? We'll explore Bayes's theorem, and in particular an easier-to-use version of it.
No additional readings here, just lots of practice with Bayes-type examples.
9. Chapter 9, Theories. — What is a theory, and when does it explain our data (our evidence)? When can we and should we believe in them? How do we know when we've thought of enough possible explanations, and thus of enough possible theories?
Additional readings: Selections from Kuhn, The Structure of Scientific Revolutions.
10. Chapter 10, Decisions. — How do we make good practical decisions, so that we get the most of what we want, given what we believe? In this part of the course, we'll learn some decision theory.
Additional readings: Buchak, "When Is Faith Rational?"

6 General Expectations, and Academic Dishonesty

Philosophers sometimes have a reputation for being aggressive or dismissive. In this class, the basic expectation is that we'll engage only in respectful discussion where we aim to learn from one another. And especially do not attack anyone on the basis of their race, gender, sexual orientation, national origin, or, well anything else at all.

Any kind of academic dishonesty, including plagiarism, is completely prohibited. [Insert university procedures here.]

7 Disability Accommodations

In light of the possibility that some students will need them, I will allow laptops, but please use them responsibly. If any kind of specific disability accommodation is needed, please let me know and we'll work something out. [Insert university policy regarding student disability accommodations here.]