

LPS 29

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SST 793
T Th 3-4pm

Critical Reasoning

“Critical Reasoning” is the Department of Logic and Philosophy of Science’s first course in logic. On the one hand, the course is preparatory for the two courses that follow it in the introductory logic sequence: LPS 30 and 31. So in this course we will become familiar with the formal systems of deductive and inductive logic that are developed more fully in those later courses. On the other hand, this course is hopefully a good place *to motivate* the need for a formal treatment of logic, and so we will focus especially on examples from the history of philosophical and scientific writing where questions of methodology arise and use these as a backdrop for our study of logic.

To this end we will examine some very short but famous discussions from Euclid, Descartes, Hume, Frege, and Wittgenstein. We will ask ourselves what types of arguments they are advancing, what it would take to make a convincing case for their positions, what type of method would be most appropriate for this purpose, and what they think logic is really about.

The course will develop from a general discussion of the nature of argumentation and the basic types of arguments to a close look at a few specific types of argumentation. In particular we will look at deductive logic, first at the level of propositional logic, and then at the finer, “subsential” level of quantification and modal qualification. Then we will look at inductive logic from the point of view of probability theory, first at the “pure” level of mathematical probability, and then at a couple of philosophically informed levels where our expectations might not be shaped purely by mathematical likelihoods. All the while, we will be focusing on the extent to which the argument types we are studying are appropriate templates for the actual arguments we are encountering in our reading.

Here is a schedule of our readings:

1. Rene Descartes, “First meditation”
2. Euclid, excerpts from *The Elements*
3. Rene Descartes, “Second meditation” (in part)

4. Ludwig Wittgenstein, excerpts from *On Certainty*
5. Gottlob Frege, excerpts from *Foundations of Arithmetic*
6. David Hume, “Sceptical doubts concerning the operations of the understanding” (in part)
7. David Hume, “Sceptical solution of these doubts”

You will get a grade in the course depending on your performance on three tests. The first test covers informal logic and basic concepts, the second test covers formal deductive logic, and the last test covers inductive logic. Each test will contain questions about the properties of the logical systems we have studied and questions about your analysis of the philosophical excerpts we have studied. You, as a class, will let me know when you feel ready for the first two tests. The last test will be on the last day of instruction.

The University of California is an equal opportunity institution, and I am an equal opportunity kind of guy. I hope that everyone is familiar with the information on the following web-site:

<http://www.eod.uci.edu/>

In addition, these two web-pages describe university policies and resources for disability services and academic honesty, both of which are part of equal opportunity provisions:

http://www.disability.uci.edu/policies_procedures/policies_index.htm

<http://www.editor.uci.edu/catalogue/appx/appx.2.htm>

I'm available to discuss any questions about this sort of thing.