

APPLIED SYMBOLIC LOGIC

Philosophy 315, Fall 2017
Scott Hall 104, M/Th 9:50–11:10
office hours M 1–2 & by appt

The goal of this course is “logic literacy”. Contemporary philosophy is steeped in logic: to read journal articles and take part in discussions, one needs to know a certain amount of logic. We will study i) the basic techniques of logic, including syntax, semantics, proof theory, metalogic, and a bit of philosophy of logic; and ii) a number of extensions of standard logic that are important in philosophy (for example, modal logic and counterfactuals). The course will be more broad than deep: we will examine many different systems, but will not spend a lot of time proving difficult metalogical results about these systems (except perhaps for completeness in propositional logic and modal propositional logic.)

Prerequisite

Philosophy 201, Intro Logic. I’ll be liberal about exceptions, especially given a strong background in mathematics. But be forewarned that this course is a lot harder than (and very different from) introductory logic.

Readings

The course text is my *Logic for Philosophy*.

Requirements

Two exams (70%), plus periodic homework assignments (30%). The first exam will be on a date to be announced; the second (which will not be cumulative) on December 19, at 12:00 noon (during finals week). Homework assignments will be posted on the course web site:

<http://tedsider.org/teaching/315/315.htm>

You must do your homework completely on your own; no working in groups. If you get stuck on a problem, you can ask me for a hint. You can email them to me or turn them in on paper. Late homework will be penalized.

Schedule (dates to be announced in class)

- Basics of logic
- Standard propositional logic: syntax, semantics, axioms, soundness, completeness
- Nonstandard propositional logic: three-valued logic, supervaluations
- Standard predicate logic: syntax, semantics
- Additions to standard predicate logic: identity, function symbols, generalized quantifiers, second-order logic; free logic
- Propositional modal logic: syntax, semantics, axioms, soundness, completeness
- Variations on propositional modal logic: semantics for tense logic
- Counterfactual conditionals: Stalnaker, Lewis
- Quantified modal logic: syntax, semantics
- Two-dimensional modal logic