Applied Symbolic Logic

Philosophy 315, Spring 2026
Scott Hall 101, Tues/Fri 10:20–11:40
office hours Tues 12–1 & by appt

To be able to understand contemporary philosophy, it helps to be "logically literate": to be fluent in logical languages and to understand what logic is all about. In this course we will study the basic techniques of logic, including syntax, semantics, proof theory, and metalogic; we will discuss some philosophy of logic; and we will study various logical languages, including some that go beyond intro logic and which are important in philosophy, such as three-valued logic, modal logic, and counterfactuals.

Prerequisite

Philosophy 201 (Intro Logic). I'll be liberal about exceptions, especially given a strong background in mathematics.

Readings

The course text is draft chapters of my *Logic for Philosophy*, which I will distribute on Canvas.

In-class devices

Electronic devices (phones, tablets, laptops, ...) cannot be used during class (except by prior arrangement with me).

Requirements

Two exams (70%), plus periodic homework assignments (30%). Homework assignments will be posted on the Canvas site, and turned in there:

`https://rutgers.instructure.com/courses/289912`

You must do your homework completely on your own: no working in groups; no AI or internet help. **Late homework will be penalized 10%; after 3 days it will not be accepted.**

Schedule

Ted Sider sider@rutgers.edu tedsider.org 106 Somerset Street, Room 526

Philosophy of logic: what is logic about?

1/20 Chapter 1 (skim section 1.7)

Propositional logic

1/23 Grammar and semantics. Pp. 18–19 (on functions); sections 2.1, 2.2.1–2.2.2

1/27 Establishing validity and invalidity. Section 2.2.3

1/30 **No class**

2/3 Proof theory: sequents. Section 2.3

2/6 …continued

Three-valued logic

2/10 Łukasiewicz and Kleene. Chapter 3 through section 3.1.3

2/13 …continued

2/17 Priest. Section 3.1.4

Propositional modal logic

2/20 Idea of modal logic; grammar; symbolization. Chapter 4 through the end of section 4.3

2/24 Semantics. Pp 14–18 (on sets and relations); section 4.4 through the end of 4.4.1

2/27 Establishing validity. Section 4.4.2

3/3 Establishing invalidity. Section 4.4.3

3/6 …continued

3/10 …continued

3/13 **Midterm**

Counterfactuals

3/24 Intro. Chapter 6 through the end of section 6.1.4

3/27 Stalnaker's semantics. Section 6.2

3/31 Establishing validity and invalidity. Section 6.2.3

4/3 SC and natural language; and Lewis's criticisms. Sections 6.2.4 and 6.3

Predicate logic

4/7 Grammar and semantics. Chapter 7 through the end of section 7.2.3

4/10 . . . semantics continued

4/14 Establishing validity and invalidity. Section 7.2.4

4/17 . . . continued

Quantified modal logic

4/21 Grammar, semantics. Chapter 8 through the end of section 8.3

4/24 Establishing validity and invalidity. Section 8.3.1

4/28 . . . continued

5/1 Philosophical questions about QML. Section 9.5

5/13 9am **Second exam (noncumulative)**