

Intermediate Logic I

Instructor

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Course description and learning goals

This course will explore some of the main results in the metatheory of classical first-order logic (e.g. its soundness and completeness). We will also study a few philosophically interesting systems that differ from classical first-order logic either by *extending* it (e.g. modal logic) or *deviating* from it (e.g. paraconsistent logic). Along the way, we will address several debates about the nature of logic, and develop some of the mathematical tools and proof methods needed for further work in the subject. In short: this course will help you venture beyond the scope of an introductory formal logic course—both in breadth and depth, both technically and philosophically.

Course prerequisites

The only formal requirement is completion of 730:201 ('Introduction to Logic').

Course assessments

Your final grade in the course will be based off three components.

One component of your grade will be based on **your engagement with the assigned readings through [Perusall](#)**, which you can launch from the Canvas course website. Each week, we'll use Perusall to collectively 'tear the text apart' in real time by annotating them with questions and comments, which will then start discussion threads that can be up-voted based on how useful others find them to be. Think of it like a mix between Facebook, a Slack channel, and a run-of-the-mill PDF annotator. It will not be the same as face-to-face discussion, sadly, but it should be both useful and a lot of fun once it gets started. I will soon upload a video with more detailed instructions about how this will work, but for now I recommend you take a look at [this video](#) on the pedagogical concepts behind Perusall, and [this video](#) for a basic idea of what to expect. This component will be worth **20 points of your final grade**.

Another component of your grade will be to complete **weekly problem sets**. These will be worth **30 points of your final grade**, and I will grade your ten best.

The last component will be **two midterm exams** (worth **15 points** of your final grade each) and a comprehensive final exam (worth **20 points**).

Course texts

All course content and correspondence will be carried out on the Canvas course website. Nearly all of the readings for the course will come from the following textbook:

- Theodore Sider, *Logic for Philosophy* (2010, Oxford University Press)

In order to use it with Perusall, we will be using a penultimate draft of this textbook in PDF rather than the official printed versions—hence all page numbers refer to those in former rather than the latter.

Provisional course reading schedule

I will post the official reading schedule, with the exact passages we will be focusing on in the texts below, shortly after the first day of class. That said, here is the general plan:

- 6 Sept.** Sider, “What is Logic?”
- 9 Sept.** Sider, “What is Logic?”
- 13 Sept.** Sider, “Propositional Logic”
- 16 Sept.** Merrie Bergmann, James Moor, and Jack Nelson, *The Logic Book*, 6th edition, (2014, McGraw-Hill Education), pp. 146-174
- 20 Sept.** Sider, “Propositional Logic”
- 23 Sept.** Sider, “Propositional Logic”
- 27 Sept.** Sider, “Propositional Logic”
- 30 Sept.** Sider, “Propositional Logic”
- 4 Oct.** Sider, “Beyond Propositional Logic”
- 7 Oct.** Sider, “Beyond Propositional Logic”
- 11 Oct.** Sider, “Beyond Propositional Logic”
- 14 Oct.** Sider, “Predicate Logic”
- 18 Oct.** Sider, “Predicate Logic”
- 21 Oct.** Sider, “Predicate Logic”
- 25 Oct.** Sider, “Beyond Standard Predicate Logic”

- 28 Oct.** Sider, “Beyond Standard Predicate Logic”
- 1 Nov.** Sider, “Beyond Standard Predicate Logic”
- 4 Nov.** Sider, “Modal Propositional Logic”
- 8 Nov.** Sider, “Modal Propositional Logic”
- 11 Nov.** Sider, “Modal Propositional Logic”
- 15 Nov.** Sider, “Modal Propositional Logic”
- 18 Nov.** Sider, “Beyond Standard Modal Propositional Logic”
- 22 Nov.** Sider, “Counterfactuals”
- 25 Nov.** Sider, “Counterfactuals”
- 29 Nov.** Sider, “Quantified Modal Logic”
- 2 Dec.** Sider, “Quantified Modal Logic”
- 6 Dec.** Sider, “Quantified Modal Logic”
- 9 Dec.** Sider, “Two-Dimensional Modal Logic”

Academic integrity policy

Cheating, plagiarism, and other forms of academic malfeasance come in many forms—if you haven’t already, I would recommend familiarizing yourself with the Academic Integrity Policy (<http://academicintegrity.rutgers.edu/academic-integrity-policy/>) for a list of examples. Any suspected violation—and I am quite talented at detecting these—will be automatically referred to the Office of Judicial Affairs, and can carry penalties up to and including a failing grade in the course or expulsion from the university. Note: ignorance about what counts as academic malfeasance, or carelessness in acting in accordance with this policy, is *not* a defense. Thus, if you have any questions about whether you are toeing the line, please do not hesitate to consult with me *before* you submit your work.

University disability statement

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please visit <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please register by following this link: <https://webapps.rutgers.edu/student-ods/forms/registration>.