

Philosophy 310: Introduction to Symbolic Logic
Fall 2017

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Instructor: Ben Caplan
Time: T Th 1:00 PM – 2:15 PM
Location: 4033 Wescoe Hall
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Office hours: T Th 11:00 AM – 12:00 PM
T 2:30 PM – 3:30 PM
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Course description

We will study sentential and predicate logic. We will learn three skills: (i) how to symbolize natural-language sentences (e.g. ‘Kara is a superhero and Lena is a CEO’, ‘Someone who is a superhero is friends with someone who is a CEO’) in various formal languages; (ii) how to interpret those formal languages; and (iii) how to do proofs in those formal languages. These skills are learned, and we will learn them by working through many examples.

Required text

Terence Parsons’s *An Exposition of Symbolic Logic: With Kalish–Montague Derivations* (August 2013) is available on Blackboard.

Required software

We will use Logic 2010. The software can be downloaded (for free) from logiclx.humnet.ucla.edu. You will need to use the software to submit homework assignments.

Further information about how to install and use Logic 2010 is on Blackboard.

Course requirements

The grading scheme for the course is as follows.

Homework assignments	10%
Four mini-tests	40% (10% each)
Midterm exam	25%
Final exam	25%

Homework assignments will typically (but perhaps not invariably) be posted on Thursdays and due by the beginning of class on Tuesdays. Late homework assignments will not be accepted under any circumstances, although at least one homework assignment (the one on which you score the lowest) will be dropped when calculating your overall grade on the homework assignments.

The mini-tests are intended mainly as diagnostics, to provide you with feedback about how well you're learning the relevant skills (and to provide me with feedback about how well I'm helping you learn those skills). Mini-tests might not take up entire class periods.

The mini-tests and the midterm exam will be held in class. The dates for the mini-tests and the midterm exam will be announced at least one week ahead of time. When the mini-tests and the midterm exam are held will depend on when we cover the relevant material in class. (The final exam will be on Monday, 11 December 2017 from 1:30 PM to 4:00 PM in 4033 Wescoe Hall.)

The first mini-test will cover symbolization in sentential logic; the second mini-test will cover truth-tables. The midterm exam will be cumulative: it will cover symbolization in sentential logic, truth-tables, and derivations in sentential logic. This material can be found in Chapters 1 and 2.

The third mini-test will cover symbolization in predicate logic; the fourth mini-test will cover counter-models. The final exam will be cumulative: it will cover symbolization in sentential and predicate logic; truth-tables and counter-models; and derivations in sentential and predicate logic. This material can be found in Chapters 1–5.

I reserve the right to revise your grade *upward* to reflect my sense of what skills you have learned by the end of the course. For example, if you score higher on the midterm exam than on the first two mini-tests, or if you score higher on the final exam than on the midterm exam and the mini-tests, then I reserve the right to weight the midterm exam or the final exam more heavily.

A note about grading

On some standardized tests, there is a penalty for being wrong: you earn points for a correct answer, lose points for an incorrect answer, and neither earn nor lose points for no answer. The tests and exams in this course are not graded in that way. There is no penalty for being wrong: you earn points for a correct answer, and *at worst* an incorrect answer is treated like no answer (that is, you neither earn nor lose points for it). So it is pretty much never to your advantage to skip a question. Even if you don't feel 100% confident about your answer, you might be right, in which case you will earn full points. And, even if you haven't completely figured out how to solve a problem, if you show your work you can still earn partial credit.

It turns out that there is a significant difference between men and women: men are much more likely to guess when they don't know the answer. There is empirical evidence to suggest that this accounts for much of the reported gender differences in standardized test scores.¹

A note about stereotype threat

Anxiety can hinder academic performance. And negative stereotypes can contribute to anxiety. In particular, negative stereotypes about a certain group can lead members of that group to be more anxious. If one negative stereotype is that members of that group don't perform as well academically, the negative stereotypes can become self-fulfilling. The process whereby negative stereotypes can hinder academic performance is known as *stereotype threat*.

It turns out that it's disturbingly easy to elicit stereotype threat. For example, it makes a huge difference whether students are told "This is a math test" or "This is a problem-solving task."² (By the way, this is not a course in math. It's a course in problem-solving.)

It also turns out that talking about stereotype threat it is a good way to combat it. For example, if students are put in a situation that elicits stereotype threat (e.g. by being told "This is a math test") but are *also* told about stereotype threat, that can make the effects of stereotype threat go away.³ The words used in one study were "it's important to keep in mind that if you are feeling anxious while taking this test, this anxiety could be the result of these negative stereotypes that are widely known in society and have nothing to do with your actual ability to do well on the test."⁴

So it's important to keep in mind that, if you are feeling anxious while taking tests or exams in this course, the anxiety could be the result of negative stereotypes that are widely known in society and that have nothing to do with your actual ability to do well on the tests or exams.

Accessibility

I'm committed to making this class as accessible as possible. If you have any particular accommodation requests, please speak to me as soon as possible.

¹ See Katherine Baldiga, "Gender Differences in Willingness to Guess," *Management Science* 60.2 (Feb. 2014): 434–448.

² For a survey of the literature, see Steve Stroessner and Catherine Good, "Stereotype Threat: An Overview," available at diversity.arizona.edu/sites/diversity/files/stereotype_threat_overview.pdf.

³ Michael Johns, Toni Schmader, and Andy Martens, "Knowing Is Half the Battle: Teaching Stereotype Threat as a Means of Improving Women's Math Performance," *Psychological Science* 16.3 (March 2005): 175–179.

⁴ Johns, Schmader, and Martens, "Knowing Is Half the Battle," p. 176.

Title IX

According to Title IX, “No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance.”⁵

If you or someone you know has been sexually harassed or assaulted, you can find resources at the Office of Institutional Opportunity and Access (ioa.ku.edu) or by contacting the Title IX Coordinator (ioa@ku.edu).

Please note that, under FERPA (the Family Educational Rights and Privacy Act), a university has a legal right to access its students’ medical records from campus health clinics.⁶

Please note also that, under Title IX, faculty members have an obligation to report to IOA incidents of sexual harassment or assault that they know, or have reason to believe, have occurred.

Academic misconduct

The university policy on academic misconduct is set out in Article II, Section 6 of the University Senate Rules and Regulations. Examples of academic misconduct include (but are not limited to) “giving or receiving of unauthorized aid on examinations ... or other assignments,” “knowingly misrepresenting the source of any academic work,” and “plagiarizing another’s work.” Penalties for academic misconduct include receiving a failing grade for the course, being suspended from the university, and being expelled. For further details, see policy.ku.edu/governance/USRR#art2sect6.

Laptops

You are permitted to use laptops in class. For example, if you want to ask me questions about the homework, or if we’re working on a derivation together, you might want to have access to Logic 2010.

However, students report that they find laptop use in class distracting. This includes laptop use by their peers.⁷ (If you’re browsing Facebook during class, you might find

⁵ Title IX is a portion of the United States Education Amendments of 1972, Public Law No. 92-318, 86 Stat. 235 (23 June 1972), codified at 20 U.S.C. Section 1681–1688.

⁶ In effect, FERPA limits the Health Insurance Portability and Accountability Act (HIPAA). See “Joint Guidance on the Application of the *Family Educational Rights and Privacy Act (FERPA)* and the *Health Insurance Portability and Accountability Act of 1996 (HIPAA)* to Student Health Records,” p. 6. Available at www.hhs.gov/sites/default/files/ocr/privacy/hipaa/understanding/coveridentities/hipaaferpajointguide.pdf.

it interesting. So, apparently, might those around you.) More importantly, “the level of laptop use was negatively related to several measures of student learning, including ... overall course performance,” which is to say that (generally speaking) the more students used laptops in class, the worse their final grades were.⁸

If you use a laptop in class, please try to sit somewhere where your screen is less likely to be visible to others.

Concealed carry

If you carry a concealed handgun, familiarize yourself both with the relevant state and federal laws and with KU’s weapons policy. See concealedcarry.ku.edu/information.

Schedule

A detailed and updated schedule will be posted on Blackboard as we go. (The precise schedule will depend on the pace at which we work through the material in class.) We will cover the Introduction and Chapters 1–5. Please note that we will cover the material in a different order than the text.

There is no class on Tuesday, 17 October 2017 (Fall Break) or Thursday, 23 November 2017 (Thanksgiving Break).

The final exam will be on **Monday, 11 December 2017 from 1:30 PM to 4:00 PM in 4033 Wescoe Hall.**

⁷ Carrie B. Fried, “In-Class Laptop Use and Its Effects on Student Learning,” *Computers and Education* 50.3 (April 2008): 906–914.

⁸ Fried, “In-Class Laptop Use and Its Effects on Student Learning,” p. 906.