Philosophy 2500: Symbolic Logic
Autumn 2016

Updated 19 August 2016

General information

Class

Time:	T Th 11:10 AM – 12:05 PM
Location:	Watts Hall 395

Recitation 1

Time:	F 10:20 AM – 11:15 AM
Location:	McPherson Chemical Laboratory 1008

Recitation 2

Time:	F 11:30 AM – 12:25 PM
Location:	McPherson Chemical Laboratory 1008

Instructor   Ben Caplan

Office:	372 University Hall
Office hours:	T 2:15 PM – 3:45 PM, or by appointment
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Teaching assistant   Shaun Whittle

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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. 'If Michaëlle governs, then Beverley judges and Jody is just', 'Someone who governs is friends with someone who judges or is just') 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* is available on ~~Carmen Canvas~~ ~~Carmen (D2L)~~ Carmen (Canvas).

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.

Course requirements

With four exceptions (to be explained below), 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 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 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, 12 December 2016 from 12:00 PM to 1:45 PM in Watts Hall 395.)

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.

Exceptions

(1)   If you score higher on the midterm exam than you do on the average of the first two mini-tests, then the midterm exam will be worth 45% (and the first two mini-tests will be worth 0%).

(2)   If you score higher on the final exam than you do on the average of the previous mini-tests and the midterm exam (i.e. the four mini-tests and the midterm exam or, if exception (1) applies, the midterm exam and the third and fourth mini-tests) *but not* higher than you do on the average of the homework assignments, then the final exam will be worth 90% (and the previous mini-tests and the midterm exam will be worth 0%).

(3)   If you score higher on the final exam than you do on the average of the previous mini-tests and the midterm exam (i.e. the four mini-tests and the midterm exam or, if exception (1) applies, the midterm exam and the third and fourth mini-tests) *and* on the average of the homework assignments, then the final exam will be worth 100% (and the previous mini-tests, the midterm exam, and the homework assignments will be worth 0%).

(4)   If your average on the four mini-tests, the midterm exam, and the homework assignments (or, if exception (1) applies, the midterm exam, the third and fourth mini-tests, and the homework assignments) is at least 100%, then you don't have to take the final exam and you will automatically receive an A for the course.

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]

Schedule

A detailed and updated schedule will be posted on ~~Carmen~~ ~~Canvas~~ ~~Carmen~~ ~~(D2L)~~ Carmen (Canvas) as we go. 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 Thursday, 13 October 2016 (Autumn Break) and on Thursday, 24 November 2016 (American Thanksgiving).

The final exam will be on **Monday, 12 December 2016 from 12:00 PM to 1:45 PM in Watts Hall 395**.

Academic misconduct

Academic misconduct is a serious offense. You are expected to know what counts as academic misconduct. You are also expected not to commit it. In accordance with Faculty Rule 3335-5-487, all suspected cases of academic misconduct will be reported to the university's Committee on Academic Misconduct. For further details, see the Code of Student Conduct at studentaffairs.osu.edu/resource_csc.asp.

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.

Nondiscrimination

Ohio State does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, sexual orientation, or veteran status in its programs, activities, employment, and admission.

Title IX

Title IX—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—states (in part), "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of,

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

or be subjected to discrimination under any education program or activity receiving federal financial assistance."

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you can find resources at titleix.osu.edu or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu.

General Education Goals and Expected Learning Outcomes

This course satisfies the Quantitative Reasoning—Mathematical or Logical Analysis requirement.

Goals: Students develop skills in quantitative literacy and logical reasoning, including the ability to identify valid arguments, and use mathematical models.

Expected Learning Outcomes: Students comprehend mathematical concepts and methods adequate to construct valid arguments, understand inductive and deductive reasoning, and increase their general problem solving skills.

In this course, students will develop their skills in logical reasoning, including the ability to identify valid arguments, in part by translating sentences about Lorelai and Paris into various formal languages. Students will comprehend logical (rather than mathematical) concepts adequate to construct valid arguments and understand deductive reasoning; some (but not all) of those arguments, and some (but not all) of that reasoning, will be about Michaëlle, Beverley, and Jody.