Philosophy 310: Introduction to Symbolic Logic
Fall 2021

Last updated: 24 August 2021

Instructor: Ben Caplan (he/him/his)
Time: T Th 2:30–3:45 PM
Location: ~~438~~ 428 Summerfield
Office hours: T Th 11:00–11:45 AM, or by appointment
Email: caplan@ku.edu

Mode of instruction

The plan is to meet in-person twice a week. I will let you know if we are told that it is necessary to shift course format.

Information on the Zoom meeting room for office hours is on Blackboard (under Announcements).

Course description

We will study sentential and predicate logic. We will learn three types of skills: (*i*) how to symbolize English sentences (e.g. 'Elizabeth has dorgis and Meghan has a beagle', 'Someone who has dorgis is the grandmother-in-law of someone who has a beagle') 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 examples.

Required text and software

Terence Parsons's *An Exposition of Symbolic Logic: With Kalish–Montague Derivations* (August 2013)—otherwise known as *TerryText*—is available on Blackboard.

We will use Logic 2010. The software can be downloaded (for free) from https://logiclx.humnet.ucla.edu. You will need to use the software to submit homework assignments (starting with the second homework assignment). Information about how to install and use Logic 2010 is on Blackboard (under Logic 2010).

Logic 2010 runs on Macs and PCs but unfortunately not on Chromebooks. If you have trouble installing or running Logic 2010, please let me know.

Course requirements

10% of your grade will be based on homework. The remaining 90% of your grade will be based on two mini-tests, two group assignments, a midterm exam, and a final exam.

The mini-tests, group assignments, and exams will cover the following six units: (1) symbolization in sentential logic, (2) truth-tables, (3) derivations in sentential logic, (4) symbolization in predicate logic, (5) countermodels, and (6) derivations in predicate logic.

Test, exam, or group assignment	**Material covered**	**Chapters in *TerryText***
Mini-test 1	(1) Symbolization in sentential logic	Chapter 1.1, 1.3 Chapter 2.1–2.3
Group assignment 1	(2) Truth-tables	Chapter 1.2 Chapter 2.1, 2.10, 2.11
Midterm	(1) Symbolization in sentential logic	[see above]
	(2) Truth-tables	[see above]
	(3) Derivations in sentential logic	Chapter 1.4–1.8, 1.10, 1.11 Chapter 2.4, 2.5, 2.9
Mini-test 2	(4) Symbolization in predicate logic	Chapter 3.1–3.3, 3.5 Chapter 4.1, 4.2
Group assignment 2	(5) Countermodels	Chapter 3.4, 3.10 Chapter 4.9
Final exam	(4) Symbolization in predicate logic	[see above]
	(5) Countermodels	[see above]
	(6) Derivations in predicate logic	Chapter 3.6–3.9 Chapter 4.3

Grading

There will be approximately 15 homework assignments (one per week, starting in Week 2). Your two lowest homework scores won't count towards your homework grade.

The mini-tests and the group assignments will be graded out of 15 points. The midterm and the final will have three sections; each section will be graded out of 15 points.

With the exception of the score for the first homework assignment, your homework scores will be available on the Logic Student Assignments & Scores page: https://logiclx.humnet.ucla.edu/Logic/Student/Course.

Your other scores will be available under My Grades on Blackboard.

Your final grade will be calculated based on the highest number of points you earn for a particular skill.

Skill or unit	The points you earn will come from …	Percentage of final grade
Homework	all of the homework assignments you complete, **except for** your two lowest homework scores	10%
(1) Symbolization in sentential logic	whichever of the following you score **highest** on: mini-test 1, section (1) of the midterm, mini-test 2, and section (4) of the final.	15%
(2) Truth-tables	whichever of the following you score **highest** on: group assignment 1, section (2) of the midterm, group assignment 2, and section (5) of the final.	15%
(3) Derivations in sentential logic	whichever of the following you score **highest** on: section (3) of the midterm and section (6) of the final.	15%
(4) Symbolization in predicate logic	whichever of the following you score **highest** on: mini-test 2 and section (4) of the final.	15%
(5) Countermodels	whichever of the following you score **highest** on: group assignment 2 and section (5) of the final.	15%
(6) Derivations in predicate logic	section (6) of the final.	15%

Given the nature of the grading scheme, your total grade will not be calculated on My Grades on Blackboard. To figure out what your total grade is, you can use the grade calculator (on Blackboard under Grade Calculator). (It's an Excel spreadsheet. If you enter your scores, it will calculate your total grade.) Or just ask me, by email or during office hours.

Numerical grades will be converted to letter grades using the following scheme.[1]

From	To	Letter grade
93.50	100.00	A
90.00	93.49	A–
86.50	89.99	B+
83.50	86.49	B
80.00	83.49	B–
76.50	79.99	C+
73.50	76.49	C
70.00	73.49	C–
66.50	69.99	D+
63.50	66.49	D
60.00	63.49	D–
00.00	59.99	F

[1] See Ben Eggleston, "Plus/Minus Grading," available at http://www.benegg.net/plus-minus_grading.pdf.

Dates and due dates

You will typically (but perhaps not invariably) have at least five days (e.g. Thursday to Tuesday) to complete each homework assignment. Due dates for the homework assignments will be posted on Blackboard and (except for the first homework assignment) will also be available on the Logic Student Assignments & Scores page: https://logiclx.humnet.ucla.edu/Logic/Student/Course. Homework assignments will be due at the beginning of class (i.e. at 2:30 PM).

The mini-tests and the midterm exam will be held in class. The midterm will take up an entire class period; the mini-tests will not. The dates for the mini-tests and the midterm exam will be announced at least one week ahead of time, as will the due dates for the take-home group assignments. This information will be posted on Blackboard.

When the mini-tests and the midterm exam are held, and when the group assignments are due, will depend on when we cover the relevant material in class. One mini-test will be held, and one group assignment will be due, before the midterm; another mini-test will be held, and another group assignment will be due, after the midterm. The final exam will be on **Monday, 13 December 2021 from 1:30 PM to 4:00 PM** in ~~438~~ 428 Summerfield.

Please bring an exam booklet with you to the midterm and the final. These can be purchased in the KU Bookstore (or the Hawk Shop in the Underground in Wescoe Hall).

Lateness policies

With one possible exception noted below, late homework assignments won't be accepted. Unless you make arrangements with me beforehand, late group assignments won't be accepted. And, unless you make arrangements with me beforehand, you won't be able to take the mini-tests, the midterm, or the final exam for credit except on the scheduled dates. (This is in part to allow discussion of the homework assignments, the group assignments, the mini-tests, and the midterm as soon as possible.)

Here's the possible exception mentioned above: I reserve the right to count one or more late homework assignments if doing so would increase your grade from F to D– or from D+ to C–.

Questions about homework

If you ever have any questions about any of problems on any of the homework assignments (either before or after they're due), feel free to ask during class, during office hours, or by email. If you are asking by email, it will often be helpful to attach a screenshot of the work you've done so far. Or, if you are asking during office hours

over Zoom, I might ask you to share your screen. This will make it easier for me to provide you with specific advice.

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, assignments, 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 almost 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.[2]

Accessibility

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

Electronic devices

You are permitted to use electronic devices (e.g. laptops, tablets, phones) in class for legitimate academic purposes (e.g. using Logic 2010, consulting *TerryText*, taking notes). But please use electronic devices responsibly. There is empirical evidence to suggest that laptop and tablet use in class negatively affects student scores.[3]

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 https://concealedcarry.ku.edu/information.

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[2] See Katherine B. Coffman and David Klinowski, "The Impact of Penalties for Wrong Answers on the Gender Gap in Test Scores," *Proceedings of the National Academy of Sciences of the United States of America* 117.16 (21 April 2020): 8794–8803.

[3] Susan Payne Carter, Kyle Greenberg, and Michael S. Walker, "The Impact of Computer Usage on Academic Performance: Evidence from a Randomized Trial at the United States Military Academy," *Economics of Education Review* 56 (Feb. 2017): 118–132.

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 https://policy.ku.edu/governance/USRR #art2sect6.

Schedule

The schedule will be updated on Blackboard as we go. The precise schedule will depend on the pace at which we work through the material in class.

There is no class on Tuesday, 12 October 2021 (Fall Break) or Thursday, 25 November 2021 (Thanksgiving Break).

The final exam will be on **Monday, 13 December 2021 from 1:30 PM to 4:00 PM** in ~~438~~ 428 Summerfield.