

PHIL 310
Introduction to Symbolic Logic

Last updated: 24 August 2024

Instructor Contact Information

Instructor Name and Preferred Title: Prof. Ben Caplan (he/him)

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Office: 3075 Wescoe Hall

Office Hours (starting Week 2): M 1–2 PM, W 3–4 PM, or by appointment

Class Time and Location

Class Time: MWF 2:00–2:50 PM

Class Location: 4051 Wescoe Hall

Semester: Fall 2024

Course Hours and Instructional Methods

Credit Hours: 3. Each credit hour corresponds to “a minimum of two hours of out-of-class student work each week for approximately fifteen weeks” (adapted from <https://policy.ku.edu/registrar/credit-hour>).

Instructional method: LEC. This is an in-person class. It will include lecture, in-class discussion, small-group activities, and group projects.

Course Description

An introduction to the theory and practice of elementary symbolic logic. Special emphasis will be placed upon the logical analysis of mathematical proof and upon a proof of the consistency of elementary logic.

Additional Course Description

We will study sentential and predicate logic. We will learn three types of skills: (i) how to symbolize English sentences (e.g. ‘Meghan has beagles and Harry has a black Lab’, ‘Someone who has beagles is married to someone who has a black Lab’) 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.

Learning Outcomes

This course satisfies GE11 (Goal 1 Outcome 1: Critical Thinking) and GE3H (Goal 3: Arts and Humanities). After successful completion of this course, students will be able to analyze and evaluate assumptions, claims, and arguments; and they will be able to demonstrate basic competence in logical methods of reasoning, which are among the analytic methods used in the arts and humanities. The course also satisfies the Data Science Connectors requirement for the Undergraduate Certificate in Data Science.

Course Materials

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

You will need to bring an exam booklet (sometimes known as a “Blue Book”) 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).

Course Assignments and Requirements

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	Unit or material covered	Chapters in <i>TerryText</i>
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

The mini-tests will be graded out of 20 points. The group assignments will be graded out of 10 points. The midterm and the final will have three sections, worth 20, 10, and 20 points, respectively.

Skill or unit	The points you earn will come from ...	Percentage of final grade
(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.	20%
(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.	10%
(3) Derivations in sentential logic	whichever of the following you score highest on: section (3) of the midterm and section (6) of the final.	20%
(4) Symbolization in predicate logic	whichever of the following you score highest on: mini-test 2 and section (4) of the final.	20%
(5) Countermodels	whichever of the following you score highest on: group assignment 2 and section (5) of the final.	10%
(6) Derivations in predicate logic	section (6) of the final.	20%

General Assignment Information

- All tests and exams are administered in person.
- All tests and exams are on the day indicated on the course schedule (on Canvas), unless indicated otherwise ahead of time.
- Further instructions for the group assignments will be provided on Canvas.

Evaluation Criteria and Grading Scale

Student Survey of Teaching

I always welcome feedback on what is working well and what could be improved. In addition, you will be asked to complete an end-of-semester, online Student Survey of Teaching, which will inform modifications to this course (and other courses that I teach) in the future.

Grading

All grades will be posted on Canvas. You are strongly encouraged to check your scores regularly. Your final percentage grade will be calculated based on the highest number of points you earn for a particular skill (as indicated in the table on this page).

Given the nature of the grading scheme, your total grade will not be calculated on “Grades” on Canvas. To figure out what your total grade is, you can use the grade calculator (on Canvas under “Syllabus, textbook, etc.”). (It’s an Excel spreadsheet. You’ll need to download it to use it. If you enter your scores, it will calculate your total grade.) Or just ask me, by email or during office hours.

Grading Scale¹

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

Incomplete Grades

You may be assigned an 'I' (Incomplete) grade if you are unable to complete some portion of the assigned coursework because of an unanticipated illness, accident, work-related responsibility, family hardship, or verified learning disability. An Incomplete grade is not intended to give you additional time to complete course assignments or extra credit unless there is indication that the specified circumstances prevented you from completing course assignments on time.

Attendance Policy

Please see the University Excused Absences policy (USRR 2.2.1) at <https://policy.ku.edu/governance/USRR#excused>.

Academic Success

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.

Please see the Student Resources Page on the Academic Success website at <https://academicsuccess.ku.edu/student-resources-0>.

In addition to any policies and resources noted above, the KU Academic Success Student Resources website (<https://academicsuccess.ku.edu/student-resources-0>) provides links

¹ See Ben Eggleston, “Plus/Minus Grading,” at http://www.benegg.net/plus-minus_grading.pdf.

to KU Policies and Resources pertaining to academic misconduct, grading policies, harassment and discrimination, diversity and inclusion, mandatory reporting, equal opportunity and affirmative action, and student rights and responsibilities. Please visit the site to familiarize yourself with these policies and resources. If you have questions or concerns about any of these policies, statements, or resources, please let me know, or contact Student Affairs directly.

Concealed Carry

If you carry a concealed handgun, familiarize yourself both with the relevant state and federal laws and with KU's weapons policy at <https://concealedcarry.ku.edu/information>.

Course Schedule

The first day of class is Monday, 26 August 2024. The last day of class is Wednesday, 11 December 2024. There is no class on the following dates: Monday, 2 September 2024 (Labor Day); Monday, 14 October 2024 (Fall Break); Wednesday, 27 November 2024 and Friday, 29 November 2024 (Thanksgiving Break). I might cancel additional classes or meet by Zoom. If so, I will let you know in advance.

The final exam is Wednesday, 18 December 2024, from 1:30 PM to 4:00 PM.

A detailed (but tentative) schedule is available on Canvas. I reserve the right to make changes to the schedule as we go along; these changes will be reflected in an updated or revised version of the schedule on Canvas. You will always have at least one week to prepare for mini-tests and the midterm, and you will always have at least one week to complete group assignments.