PHI 1600: LOGIC AND MORAL REASONING

Tu 10:45-12:00, B-Vert 11-160

Semester: Fall '24
Instructor: Naomi Hillas
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Office Hour: Thursday 1-2pm, 5-260C

COURSE DESCRIPTION:

There is an important, distinctive sense in which some claims are *consequences* of others. For instance, from the fact that there are a lot of people in the room we can deduce that there is at least someone in the room. But we cannot yet deduce that there is someone wearing jeans in the room—though this is likely, it isn't *necessarily* a consequence of there being a lot of people in the room (perhaps they are all wearing skirts, or slacks, or sweatpants, or cardboard boxes on their legs, or animal pelts, or printed out pictures of David Bowie scotch-taped to their knees or nothing at all). This notion of consequence, *logical consequence*, lies at the foundation of good reasoning. One might say it is central to studying what rationality is. In this course, we will use the methods of rationality on rationality itself, by studying the basics of logic. The notion of consequence—what follows from what—will be central to our investigation.

Logic provides us with the resources to describe arguments and inferences with mathematical precision. It gives us clear and explicit methods for characterizing whether and when conclusions of arguments are consequences of premises. Mastery of these skills is the foundation for effective and persuasive reasoning. Those that study logic tend to do better on a host of tasks, including the LSAT, the GREs, the GMATs, overall GPA, computer programming, etc. Perhaps more importantly, mastering logical skills will allow one to spot bad arguments, a skill that is needed in all aspects of everyday life.

LEARNING GOALS:

At the end of this course student will be able to:

- Describe the notions of validity and soundness
- Be able to spot valid and invalid arguments
- Be able to tell inductive from deductive arguments
- Be able to perform proofs in propositional logic
- Translate natural language sentences into formal logic
- Understand and use truth tables
- Understand natural deduction methods of proof

ZERO TEXTBOOK COURSE (ZTC):

Baruch College professors have been building the website, materials, and textbook for this course solely to give it to students for free, so that they don't need to spend money. As such the materials are part of the *Open Access* movement. The textbook and other materials associated with this course are licensed under a Creative Commons Attribution-Non-Commercial-ShareAlike 4.0 International License. You are free to keep, use, share and adapt the course materials for non-commercial purposes in accordance with the CC license.

You can find the textbook here:
https://cuny.manifoldapp.org/projects/logic-and-moral-reasoning

You can find the course videos here:
https://www.youtube.com/channel/UCuush01mhhQgE_85o8i6gbw

You can find the problem sets here (you'll need to log in):
https://baruchlogic.baruchsites.com/.Y

THE PROBLEM SETS:
In order to log in to the website with the problem sets, you will receive a message via email, containing a random password. This is the only thing you need to log in, but it cannot be changed. Do not lose your password! Part of taking this class is keeping this password. You must keep track of it!

It is recommended that, as much as possible, you access the website on Google Chrome from a PC, especially when doing homework. Other browsers, operating systems, and hardware may not be supported. Using (say) Safari on your iPhone to do the homework is a good way to run into technical difficulties. If you encounter a problem with the website (e.g., the videos are not displaying, you are getting 404 errors, etc.) email me.

GRADE BREAKDOWN:
Homework: 50%
Midterm Exam: 20%
Final Exam: 20%
Attendance: 10%

A note on the homework:
As the class is cumulative, please be careful! If you don't come to class and you don't do the homework, you will fall behind quickly. Everything we read will build on previous readings so if you don't understand something we go over early in the class, you will be in trouble if you don't get it down quick.

On the website, the homework problem sets are repeatable. This means that, until the deadline, the homework can be repeated as many times as you want, so you can keep trying until you get a score you're satisfied with. If you had infinite time, you could probably just guess and get 100% on the homework—and it would also likely result in failing the exams! So there really isn't any shortcut here; attempt to game the system to your own detriment.

If you are having difficulty submitting your homework online, as a last resort you should email me screenshots of your completed homework, with "PROBLEM SET [number]" in the subject line.

COURSE POLICIES

(i) Late homework policy:
Late homework cannot be submitted, as the website will literally not accept it.

(ii) Attendance and lateness:
Attendance will constitute 10% of your grade. This is a pass/fail condition. If you miss more than 3 meetings without giving sufficient reason, you will get 0%. I highly recommend you attend *and* participate. It is all too easy to get lost in a course, and eventually drop off entirely, without keeping up with what's going on.

(iii) Cheating and Plagiarism:
Cheating and plagiarism are extremely serious offenses in all academic areas. If anyone is found to be cheating in this course, they will automatically fail the assignment in question, and I will be obligated to pass your name onto the Dean of Students. Note that it is surprisingly easy to tell when people are cheating on logic exams.

The following definitions are based on the College's Academic Honesty website:

Cheating is the attempted or unauthorized use of materials, information, notes, study aids, devices or communication during an academic exercise. Examples include but are not limited to: (a) copying from another student during an examination or allowing another to copy your work; (b) unauthorized collaborating on a take home assignment or examination; (c) using unauthorized notes during a closed book examination; (d) using unauthorized electronic devices during an examination; (e) taking an examination for another student; (f) asking or allowing another student to take an examination for you; (g) changing a corrected exam and returning it for more credit; (h) submitting substantial portions of the same paper to two classes without consulting the second instructor; (i) preparing answers or writing notes in a blue book (exam booklet) before an examination; (j) allowing others to research and write assigned papers including the use of commercial term paper services.

Plagiarism is the act of presenting another person's ideas, research or writing as your own. Examples include, but are not limited to (a) copying another person's actual words without the use of quotation marks and footnotes (a functional limit is four or more words taken from the work of another); (b) presenting another person's ideas or theories in your own words without acknowledging them; (c) using information that cannot reasonably be considered common

knowledge without acknowledging the source thereof; and (d) failure to acknowledge collaborators on homework and other assignments.

For more, see http://www.baruch.cuny.edu/academic/academic_honesty.html. A tutorial on plagiarism may be found at http://newman.baruch.cuny.edu/plagiarism/index.htm.

(iv) Make-up exams:
Make-up exams (and homework) will only be made available in extreme circumstances. If you think yours qualify, email me as soon as possible

(v) Other policies:

- In discussion, be respectful to me and to your fellow students.
- Before you email me to ask a question, check whether it's covered in this syllabus or in my emails.

STUDENTS WITH DISABILITIES:
It is college policy to provide accommodations and academic adjustments for students with disabilities. Any student with a disability who may need accommodations in this class is requested to speak directly to Student Disability Services at disability.services@baruch.cuny.edu. All discussions will remain confidential.

Check out the Student Disability Service website:
http://www.baruch.cuny.edu/studentaffairs/ossd/disabilityServices.htm

ACADEMIC SUPPORT SERVICES:
Baruch College has a number of opportunities that you are encouraged to take advantage of in case you find yourself needing help in this or any class—for whatever reason—including:

- Peer Tutoring http://www.baruch.cuny.edu/sacc/
- The Writing Center https://writingcenter.baruch.cuny.edu/
- Tools for Clear Speech (for English language learners and nonnative English speakers)
    - https://tfcs.baruch.cuny.edu/
- Comprehensive academic advisement http://www.baruch.cuny.edu/undergraduate-advisement-and-orientation/

Course Schedule

* For extra credit only

Date	Readings (to be completed before class)	Videos (to be watched before class and reviewed when necessary)	Problem Set due
09.03	Syllabus		
09.10	I.1 Introduction to Logic	What is Logic? Entailment & Argument Structure Logical Keywords Practical vs Factual Arguments Deductive vs. Inductive Arguments	
09.17	I.2 Validity, Soundness, Strength, Cogency	Validity & Soundness Counterexamples Strength & Cogency	1 & 2
09.24	II.1 Symbolic Logic & Translations	Symbolic Logic & Translation	5
10.01	II.2 Truth Tables and Truth Functions	Truth Functions Truth Tables Truth Tables for Logical Operators	6

10.08	II.3 Truth Tables & Validity	Joint Truth Tables (Truth Tables & Validity) Note that you *must* watch this video, as the content covered here is *not* covered in the textbook, but will be on the midterm.	7
10.22	Midterm		
10.29	III.1 Natural Deduction III.2 Rules for Natural Deduction: Rules of Implication (up to Hypothetical Syllogism)	What is Natural Deduction How To Construct a Proof Natural Deduction - Basic Proofs Rule Videos: - Simplification and conjunction - Addition - Modus ponens and modus tollens	
11.05	III.2 Rules for Natural Deduction: Rules of Implication (what remains of the chapter) III.3 Rules for Natural Deduction: Rules of Replacement (up to DeMorgan's Law)	REVIEW: Natural Deduction - Basic Proofs Rules of Inference vs Rules of Replacement Rule Videos: Hypothetical Syllogism Constructive Dilemma Disjunctive Syllogism Double Negation Commutativity and Associativity	
11.12	III.3 Rules for Natural Deduction: Rules of	More Basic Natural Deduction Rule Videos:	8 & 9

	Replacement (what remains of the chapter)	De Morgans Law Distribution Exportation Transposition Tautology Material Implication Material Equivalence	
11.19	III.4 Advanced Proof Techniques (up to "Conditional Proof")	Natural Deduction - Advanced Proofs Indirect Proofs Assumptions and Brackets	
11.26	III.4 Advanced Proof Techniques (what remains of chapter)	Conditional Proofs Review: Assumptions and Brackets	10
12.03	TBD		
12.10	Review: For extra credit, read I.3 Logical Fallacies		3* & 4*, 11* & 12*
	Final exam period DECEMBER 15-21, 2024		