PHIL 202: Symbolic Logic

Nicolis 301 | Tuesdays and Thursdays, 9:30–10:45AM
Website: http://blackboard.uidaho.edu

Instructors
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General Remarks
Logic is the study of reasoning as it is revealed through language. In this course, we learn a new language that makes plain certain fundamental elements of human reasoning. Our purpose in doing this is to build a framework that we can use to assess and construct good arguments. In constructing this framework, we will attend to the formal elements of language — elements that have to do with the form or structure of language as opposed to its content. In particular, we concentrate on the form of sentences in the language, since we can use sets of sentences to represent arguments and patterns of reasoning more generally. This allows us to determine what arguments are good and bad.

Though we will often attend to philosophical and practical issues involved in the use of logic in evaluating ordinary, informal arguments (the sort you are liable to come across in politics, science, philosophy, history, and everyday life), our emphasis in this course will be the development of a formal system with rules and conventions. Developing proficiency at using this formal system, aside from being directly useful in philosophy and mathematics (at least) should sharpen your innate logical skills. You might think of an analogy to learning calculus: in mastering a particular mathematical language with its own (to an extent arbitrary) rules and conventions, you will undoubtedly gain a deeper understanding of the physical processes calculus was invented to model. So too with the system of logic we will learn in this course for arguments. But I emphasize that we must first learn the system, with all its nuances, rules, symbols, and other formal apparatus. The course will resemble a math course more than anything else — and I find that it’s not the easiest math course students run into. Many ill-informed students elect to take logic because they judge it to be an easy way to fulfill a quantitative reasoning requirement (or what have you); if you’re looking for an easy A and you have symbol-phobia, you might want to look elsewhere.

Learning Objectives
- Provide you with formal tools for distinguishing between good and bad deductive thinking.
- Introduce you to the formal structure of the language(s) that we use daily to construct arguments.
- Introduce you to key logical concepts such as argument, proof, validity, soundness, logical consequence, &c.
- Expose you to the nature of deductive proofs and supply you with the necessary tools to evaluate and construct them.
- Provide those of you who will encounter formal logic outside of the course (e.g., students of philosophy, mathematics, computer science, &c.) with a firm foundation in symbolic logic. There are many fascinating extensions of the basic language we will be learning here as well as questions about the foundations of logic.

Please let me know at any point if you think we aren’t making sufficient progress toward these goals, or if there are other goals not listed here that you think we should consider.

Important Note about the Text
You will need to get yourself a new copy of Barwise and Etchemendy’s Language, Proof, and Logic (Stanford, CSLI Press), henceforth ‘LPL.’ I have ordered many copies to the UI bookstore. This is a text/software package and — I repeat — must be purchased as new because the software comes with a unique serial number that will be permanently associated with you as a student. Hence, buying a used copy runs the risk of assuming someone else’s identity (which won’t be very useful for your grade, now would it?). When you first get started, I would recommend making sure you have the latest software (which you can download from https://lpl.stanford.edu). As of this writing, it’s version 2.7.

Requirements & Assessment
Your final grade will be based on seven problem sets (worth 100 points each) and three exams (two hour exams and one comprehensive final). The midterm exams will be worth 150 pts each. The final will be worth 200 pts. In calculating your final grade, your lowest problem set will be dropped. In calculating the final semester grade, I will begin by considering the A/B/C/D cutoffs at 90%, 80%, 70%, and 60%, respectively (thus, in points, 990, 880, 770, 660, and so on). If need be, I will curve the cutoffs downward, but I will not raise them above those levels. I will also provide plenty of opportunities to add to this total via extra credit.

Problem Sets will be due by 11PM on the day indicated in the schedule. Late assignments will not be accepted, as I will be posting solutions to the problem sets the day after they are due. Being able to turn in problem sets for a penalized grade with the solutions available would hardly be fair. As the deadlines and problems are announced far ahead of time, I will be strict in accepting only catastrophic excuses for late submissions. I strongly advise you to be working on the problem sets as we go along, as the problems are integrated in various parts of the text. If you come across an assigned problem, give it a try right then while the material is fresh. Waiting until the day the problem set is due usually result in pain, I give you my word, and I won’t be sympathetic.

I am also happy to allow you to work together on the problem sets — in fact, I encourage it and can help set up groups, so long as you bear two things in mind: First, you must submit your own files (the software has ways of detecting whether a file has been copied); Second, you cannot pass the course without doing decently well on the in-class exams where there will be no group work, notes, or anything like that (just you, a pencil, and a few sheets of paper). So if you find yourself using the software or your friends as a crutch, you should reevaluate how you
are learning logic. I'll set up a discussion group on the website in which you can work on arranging study sessions, discuss problems with each other, and so on.

I will provide more information about the mechanics of the problem sets (they will be somewhat involved), but an important feature deserves mention here. Every problem set will be turned in online (either to Blackboard or via LPL's included software). Problems completed using the LPL software will be evaluated automatically using an online system called the Grade Grinder. Basically, you submit specially-named files created using the programs and it emails you back a report of how well you did, where you went wrong, &c. The brilliant thing about this is that you have a choice about where this report goes: you may submit an exercise (or multiple exercises) as many times as you like and have the report sent only to you by selecting the "Just Me" radio button in the Submit program. You will get a grade report (the very same thing the TA and I will get) telling you where (if anywhere) you went wrong. I don't see these — I don't want to. I simply require that you submit all of your assigned files (and all at once) by the time the problem set is due.

It's a known fact that smart people can find logic frightfully difficult. After teaching and TAing logic many times, I've become convinced that the only remedy to this is practice. You can listen intently as much as you like or memorize rules until you're blue in the face, but unless you get your hands dirty doing problems, you won't get it. If you find yourself struggling with a concept or technique, I strongly recommend doing more problems and having the Grade Grinder tell you how you're doing. Every problem set will feature extra credit problems.

Attendance at the class meetings is not required. It is, of course, recommended. But it's also a known fact about logic that some folks find it quite easy. It would be possible to learn logic just from sitting down with our textbook. If that's what you'd like to do, it's certainly fine by me. But again, I urge you to be self-critical. If you find that you're not doing as well as you'd like on the problem sets or tests, your first thought should be: perhaps I should go to lecture. Note too that it's sometimes tempting when you are not going to lecture to think that you have a full understanding of the material when in fact you don't. That feeling of "Whaaa?" you'll sometimes get in class is often a helpful sign that you're not quite there with your understanding.

Speaking of which, my mode of operation in class will be lecture, but I invite questions, objections, clarifications, &c. as they arise (if I somehow fail to notice you, just blurt out "Wait, wait! . . . " or something). I'll feel similarly free to request that certain conversations be continued in my office hours or with a TA if I think that it's derailing the rest of the class too much. Note: you may sometimes see me with a little microphone on. I'm recording these meetings in preparation for an online version of the course. Don't let this discourage you from asking something (for fear that your question would be recorded for posterity): it won't make it into the final edited product (my mic can't hear you anyway). I regret that I won't have time at this point to make my lectures available online during the term. If you'd rather take logic on your own time, in your pajamas, from your futon, stay tuned to the possibility of a summer online course.

Accommodation for the Disabled
The Department of Philosophy and my office are located on the 4th floor of Morrill Hall, which is accessible by elevator. If you have a disability that you believe might come into play in this class, please let me know.

Academic Honesty and Incompletes
I will not give incompletes in this class except in the event of emergencies (e.g., family emergencies, medical emergencies, etc.) that come to my attention before finals week. It is the policy of the Department of Philosophy to refer all instances of suspected academic dishonesty to the Student Judicial Council.

Important Dates
A precise schedule will be kept current on the Blackboard site (where all of the essential business of the course will be conducted), but roughly speaking, I plan to get through the bulk of the first thirteen chapters of LPL in the semester. I am hoping that we'll have some spare time at the end of the course to talk about further extensions of the system we'll learn and philosophical issues involved as interest dictates. Possible topics: certain meta-logical results (e.g., Gödel's Incompleteness Theorem, Completeness, Soundness), foundational questions about logic, modal logic (i.e., the logic of possibility and necessity), multi-valued and paraconsistent logics (so-called "deviant logics"), the connection of logic to informal reasoning.

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<tr>
<th>Problem Set</th>
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<td>Problem Set 0</td>
<td>August 30th</td>
<td>All further problem set deadlines will be on Sundays at 11PM.</td>
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<td>Problem Set 1</td>
<td>September 7th</td>
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<td>Problem Set 3</td>
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<td>Problem Set 4</td>
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<td>Problem Set 5</td>
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<td>Problem Set 6</td>
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<td>Problem Set 7</td>
<td>December 12th</td>
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<td>Exam 2</td>
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<td>Final Exam</td>
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