

Introduction to Logic

PHILOSOPHY 1306
FALL 2016 BAYLOR UNIVERSITY

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Office Hours: Tues 12:30-1:30 & 3:30-4:30 pm, Morrison 106

Class Time and Location: Tues/Thurs 2:00-3:15 pm, Morrison 110

Course Description and Goals

We encounter arguments in a wide variety of places, ranging from social media to conversation to books. In this course you'll learn to identify arguments in various contexts, translate them into formal systems, and evaluate which are good and which are bad. We begin with some basics of reasoning – the difference between deductive and inductive inference, and the notions of validity and soundness. For the bulk of the semester we'll deal with deductive inference, focusing on propositional logic: you'll learn to translate English statements and arguments into symbolic propositional logic, and work through argument proofs. The last third of the semester we'll turn to some common types of inductive inference, including probabilistic reasoning, statistical reasoning, and arguments from analogy. The skills taught in this course typically help students improve their scores on graduate and professional school exams (the LSAT, GRE, MCAT, and GMAT).

Required Materials

- *Logic: The Essentials* by Patrick J. Hurley (1st edition)
- Additional reading supplied via pdf

Course Requirements

Attendance and Participation (10%): To receive attendance points you must simply show up to class and participate. It is hard to lose these points unless you fail to come to class or if you never speak at all. You are allowed to miss two class sessions for any reason whatsoever, after which point I will deduct points from your attendance and participation grade. Please talk to me or your TA *ahead of time* if you know you will be absent.

Homework (30%): To get better at reasoning, you have to practice! Therefore there will be a variety of homework assignments given throughout the semester. Solutions will be posted on Canvas. The homework will be graded for completion, not accuracy; so it is your responsibility to make sure that you understand the questions that you miss. If you need more practice, there are plenty of extra problems in the book.

Three Exams, 20% each (60%): Each exam will be administered in class and will address different material throughout the course. I will provide a study guide for each exam.

Administrative Issues

Classroom Conduct: I expect everyone to respect one another in class. This means you should arrive to class on time and be an active participant. Pay attention when people are speaking, listen carefully before jumping in, and speak in a respectful tone. Be patient with questions you may already know the answer to. As for technology, one way to disrespect people is to distract them from what's important. So, put your phones on silent or vibrate—texting or answering your phone in class is not acceptable. If you want to take notes on a laptop, you must approve it with me at the beginning of the semester.

Late Assignments: All homework assignments are due at the beginning of class. Late assignments receive half credit. I understand that emergencies happen, so come talk to me or your TA if you encounter a problem that prevents you from turning in your work on time. If, however, you do not bother to make arrangements with us within 24-hours of the due date there is no way to avoid the penalty.

Office Hours: It's very very important to get help often and early in this class. If you get behind, it's extremely difficult to catch up. Ideas in this course build on one another and require lots of practice. If you want help, please visit your TA, who will hold regularly scheduled office hours. If you want to talk with me, please email me to schedule an appointment.

Academic Integrity: I will enforce the university's policy on academic integrity and report all academic misconduct. You are responsible for making yourself aware of the relevant policies and procedures of Baylor's Honor Code. Please refer to the Honor Code for more information.

Accommodation for Disabilities: Students that need special accommodations for disabilities, whether permanent or temporary, should inform me at the beginning of the semester. You will need to contact the Office of Access and Learning Accommodation (OALA) at 254-710-3605 or OALA@Baylor.edu for further instructions. I will work in conjunction with the OALA to adapt methods, materials, and testing to ensure that everyone can participate equally.

Course Outline

The following is an outline of topics and readings for the course. I reserve the right to change this schedule at any time, though I will notify you in advance. Please complete the readings before class on the days for which they are listed. All page numbers are from Hurley's *Logic: The Essentials* unless otherwise noted. Homework assignments will be assigned separately.

INTRODUCTION TO REASONING (weeks 1-2)

– Week 1 –

T 8/23 Syllabus; What is an argument?

Th 8/25 Arguments, Premises, Conclusions (1-12); Recognizing Arguments (13-29)

– Week 2 –

T 8/30 Deduction and Induction (30-40)

Th 9/1 Validity, Truth, Soundness, Strength, Cogency (41-53);

PROPOSITIONAL LOGIC (weeks 3-11)

- Week 3 -
- T 9/6** Symbols and Translation (237-249)
- Th 9/8** Introduction to Truth Tables
- Week 4 -
- T 9/13** Truth Functions (250-257)
- Th 9/15** Truth Tables for Propositions (258-266)
- Week 5 -
- T 9/20** Truth Tables for Arguments (267-273)
- Th 9/22** Truth Tables continued
- Week 6 -
- T 9/27** Argument Forms and Fallacies (283-301)
- Th 9/29** Review
- Week 7 -
- T 10/4** *EXAM #1*
- Th 10/6** Rules of Implication I (302-313)
- Week 8 -
- T 10/11** Implication I continued
- Th 10/13** Rules of Implication II (314-322)
- Week 9 -
- T 10/18** Implication II continued
- Th 10/20** Rules of Replacement I (323-335)
- Week 10 -
- T 10/25** Replacement I continued
- Th 10/27** Rules of Replacement II (336-348)
- Week 11 -
- T 11/1** Replacement II continued
- Th 11/3** *EXAM #2*

PROBABILITY & STATISTICAL REASONING (weeks 12-15)

- Week 12 -
- T 11/8** Introduction to Probability and the Rules of Probability (Salmon 217-230)
- Th 11/10** Rules of Probability continued
- Week 13 -
- T 11/15** Using Probability to Plan a Course of Action - Decision Theory (Salmon 232-241)
- Th 11/17** The Prisoner's Dilemma, the St Petersburg Paradox, and the Gambler's Fallacy (Salmon 241-249)
- Week 14 -
- T 11/22** Arguments from Analogy (Salmon 131-137)
- Th 11/24** *No Class - Thanksgiving*
- Week 15 -
- T 11/29** Arguments Based on Samples (Salmon 144-154)
- Th 12/1** Review
- Finals Week -
- Th 12/8 4:30p-6:30p** *EXAM #3*