Phil 0500: Introduction to Logic
University of Pittsburgh, Summer Term 2017 (2177)
6 weeks, session 1
CL 249: Tu/Th 02:30-5:45 p.m.

Instructor

Raja Rosenhagen
Office Hours: Tu/Th 12:30-1:30 p.m.; CL 1219
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Course Description

Critical thinking in any field requires the ability to assess *arguments*. In this course, students work on sharpening their formal reasoning skills. To that end, we will study the nature of good and bad arguments by analyzing the properties of an artificial language known as *first-order logic*. By the end of this course, you will:

(1) be familiar with basic concepts of logic,
(2) be able to translate statements from ordinary language into well-formed sentences of first-order logic (and *vice versa*),
(3) be able to determine logical properties of arguments such as validity or soundness,
(4) be able to construct formal proofs in propositional logic, using natural deduction, and
(5) have acquired some familiarity with first-order predicate logic.

Prerequisites: none.

Required Textbook

The required text is *Language, Proof, and Logic*, 2nd edition, by Barker-Plummer, Barwise, and Etchemendy (hereafter: LPL). You can purchase the text at the university bookstore or online at http://www.gradegrinder.net/store.

Important Note:
Do **NOT** buy a used copy of this book online. For this course, you'll need access to a fresh registration code that comes with each new copy of the textbook software. Used copies found online are likely to either not contain the CD with the software or not contain a fresh registration code. Likewise, if you get a used copy at the university bookstore, make sure you get both a CD and a fresh registration code from them also. If they cannot provide these, you need to buy a new copy. Having a copy of the book, being able to use the software and to access the online resources is required for submitting homework and for taking the course.

Assessment

Your final grade will be determined as follows:

Homework: 30%
Midterm exam: 30%
Final exam: 30%
In-class Assignments and Participation: 10%

Assessment (continued):

General: I expect you to do the ***reading*** and bring questions to class. It is extremely unlikely that you can succeed in this class while skipping the reading. This is a summer class, so it is relatively fast-paced. If you don't stay on top of the material, you risk getting behind quickly. Generally, the more you prepare at home, the more class time we can devote to practicing problem sets and to addressing specific questions you may have. Ideally, you will also consult the highly useful ***extra material*** provided on the authors' website (see below), including videos and exercises.

Homework: Besides the assigned reading, there will be ***six homework assignments*** during the course. Note that late submissions are not accepted. All homework assignments are due by the beginning of class, i.e. on Tuesday or Thursday (see schedule below). You must ***submit*** your homework in time and, unless instructed otherwise, ***only via the software*** that comes with the book: *Submit*. As you use *Submit*, you need to provide your instructor's name and his email address. Here they are:

Name: Raja Rosenhagen

Email: trr39@pitt.edu

(The course is listed as **UPitt – PHIL 0500**.)

Midterm exam: There will be an in-class midterm exam on ***June 6***.

Final exam: There will be an in-class, cumulative final exam on ***June 22***.

In-class Assignments: Every meeting will include ***practice problems*** that we'll work through as a class or in smaller groups. I expect you to ***participate*** by volunteering to solve an exercise or by helping your classmates during group work.

Late work: Late submissions are not accepted. If you don't submit your homework in time, you will receive an F (0%) for that homework. Note what this means: If you fail to submit one homework, the grade for your homework (i.e. 30% of your total grade) cannot be better than a B-, if you fail to submit two, it cannot be no better than a D. Accordingly, it is imperative that you acquire the book before classes start and that you familiarize yourself with the software early enough to be able to a) work out potential technical issues and then b) use it to submit your first homework.

Group work: Working with your classmates in small groups in solving the homework problems is encouraged and an efficient way to practice. However, all work submitted must be your own (the software has ways of checking this). Note also: the midterm and final exams are in-class, so if you simply copy your friends' homework, you'll be in trouble when the time of the exams comes.

Website: I highly recommend that you watch the ***video lectures*** from the textbook authors after reading over the relevant material in the book. The lectures can be found here: https://ggweb.gradegrinder.net/lpl/coursecontent

Schedule [may be subject to modification]

Week 1

Tuesday, May 16: What is Logic?

Readings: *LPL* Introduction; Chapter 1 (not: §§1.5-1.8)

Thursday, May 18: The Logic of Atomic Sentences

Readings: *LPL* Chapter 2 **Homework 1 due**

Week 2

Tuesday, May 23: Boolean Connectives

Readings: *LPL* Chapter 3 (not: §§3.4 & 3.8); Chapter 4 (not: §§4.4-4.6) **Homework 2 due**

Thursday, May 25: Proofs for Boolean Logic

Readings: *LPL* Chapter 5; Chapter 6

Week 3

Tuesday, May 30: Conditionals

Readings: *LPL* Chapter 7 (not: §§7.3-5); Chapter 8 **Homework 3 due**

Thursday, Jun 1: Midterm Review

no new readings

Week 4

Tuesday, Jun 6: **Midterm Exam** **Homework 4 due**

no new readings

Thursday, Jun 8: Intro to Quantifiers

Readings: *LPL* Chapter 9 (not: §§9.7-8) **Short Quiz 1**

Week 5

Tuesday, Jun 13: Multiple Quantifiers & The Logic of Quantifiers **Homework 5 due**

Readings: *LPL* Chapter 10 (not: §§10.5-6); Chapter 11 (not: §§11.6-8) **Short Quiz 2**

Thursday, Jun 15: Proofs for Quantifiers (1)

Readings: *LPL* Chapter 12 (not: §§12.5); Chapter 13

Week 6

Tuesday, Jun 20: Proofs for Quantifiers (2) & Final Exam Review **Homework 6 due**

no new readings **Short Quiz 3**

Thursday, Jun 22: **Final Exam**

Course Policies

Academic Integrity

I expect you to comply with the University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy.

Disability Services

If you have a disability for which you are or may be requesting an accommodation, be sure to contact me, as well as Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users. DRS will verify your disability and determine reasonable accommodations for this course.

Statement on Classroom Recording

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

Statement on Course Materials

No course materials may be reproduced or posted online.