

# INTRODUCTION TO LOGIC

Philosophy 110 (Online)

Fall 2015

## Instructor Information

Name: Josh DiPaolo (Call me Josh)

Email: [jdipaolo@philos.umass.edu](mailto:jdipaolo@philos.umass.edu)

Office Hours: Weekly Emails

## Technical Support

24/7 UMass Online Help Desk & Technical Support

- Phone: 1-888-3000-6407
- Email: [amherstsupport@umassonline.net](mailto:amherstsupport@umassonline.net)
- Click on “Live Text Support” on the login page to text chat with support staff.

## Course Description

We study mathematics to improve our *mathematical* reasoning. We study logic to improve *all* of our reasoning. If I tell you that all men are mortal and that Socrates is a man, you know to conclude that Socrates is mortal. If I tell you that all whales are mammals and that Shamu is a whale, you know to conclude that Shamu is a mammal. What you might not have realized, though, is that the reasoning you performed in arriving at each of these conclusions have the same *form*:

All Xs are Ys.

*a* is an X.

Therefore, *a* is a Y.

By studying *forms of reasoning*, rather than *particular instances of reasoning* we can abstract away from details to evaluate the reasoning itself. In doing this, we improve our own reasoning by learning which forms of reasoning are acceptable and which are not.

This is a course in formal, symbolic logic. We will be working with formal languages. You have experience with formal languages from mathematics. In this course, you will learn two formal languages – the languages of sentential logic and of predicate logic. Much of our time will be spent translating English statements into symbolic notation, and evaluating arguments using formal proof techniques.

## Text

*Symbolic Logic: A First Course* 2<sup>nd</sup> Ed. By Gary Hardegree

- This text is available on the course website, for free.

## Special Equipment Required

Scanner or digital camera. (See “Completing Exams” below.)

## Grading

Your grade is calculated from 4 exams, each worth 100 points. That means 400 total points. Final grades will be assigned according to the following scale.

Grade	Points
A	370-400
A-	350-369
B+	330-349
B	310-329
B-	290-309
C+	270-289
C	250-269
C-	230-249
D+	210-229
D	190-209
F	0-189

There will be no make-up exams and no extra credit. But there will be a way to improve your score. If you are unhappy with your score on either exam 1 or exam 3, then you are welcome to take exam 5. Exam 5 will be very similar to exam 3. If you decide to take exam 5, then I will drop the lowest of exams 1, 3, and 5. Similarly, if you are unhappy with your score on either exam 2 or exam 4, then you are welcome to take exam 6. Exam 6 will be very similar to exam 4. If you decide to take exam 6, then I will drop the lowest of exams 2, 4, and 6.

The dates of the exams are indicated in the schedule below. On the morning of each exam, I will put the exam on Blackboard. You will have until 11:59pm of that day to submit your exam. The exam questions are similar to the problems in the exercise sets from the book. So if you've been keeping up (i.e., doing the readings and the exercise sets), you should be well-prepared for the exams.

### **Completing Exams**

To take an exam, you will need to print it out, write in your answers, and then either scan the exam or take a photo of it and send it to me via email. **Thus, you will need access to either a scanner or a digital camera (such as your phone) to take the exams.**

### **Day-to-Day**

The course is divided into four modules, corresponding to the four major topics of the course. (1) Translating English sentences into sentential logic. (2) Evaluating sentential logic arguments through natural deduction. (3) Translating English sentences into predicate logic. (4) Evaluating predicate logic arguments through natural deduction.

- Don't be worried by the fact that you don't know what any of that means. You will learn what it means in this course.

On the schedule, I list readings, slides, and exercises. You should do each of these by the assigned date in order to keep pace with the class. Feel free to do any of the unassigned exercises in addition to the assigned ones.

As an online class, this course requires that you work independently and responsibly. Please be prepared to do so. However, at any time, if you have questions, you should not hesitate to email me to ask.

### Exercises

Logic is like math. You can learn only so much of it by reading about it. To really understand it, you need to *do it*. That is, you need to practice and apply what you've read. So, on the schedule below I have assigned exercises to be completed with the readings. These exercises will not be collected or graded. **Please do not underestimate their importance.**

### Office Hours/Participation

Every Thursday **except the first week of class and on exam weeks** I want you to email me answering two questions:

1. Are you understanding the material?
2. Do you think you're going to make it through the class?

Your email can be as simple as "Yes, Yes." But if you would like help, be sure to use this as an opportunity to get it. This weekly email counts as both participation and as required office hours. The amount of emails you send can help your grade. (E.g., if you are on a grade cusp, and you never email me, I'll be less likely to bump you up.)

### Videos

An instructor who previously taught this course (not me) has made videos he created for the course available to us. In the videos, he discusses the assigned exercises. In each module, I list the video and the corresponding exercises. Feel free to use these if they help you.

### Academic Honesty

The UMass academic honesty policy can be found here:  
[https://www.umass.edu/dean\\_students/academic\\_policy](https://www.umass.edu/dean_students/academic_policy)

### Schedule

Since this is an online course, you have some freedom in the pace you choose to work through the material. However, I'm going to structure the course as if it were face-to-face, and pretend we are on a Tuesday/Thursday schedule.

<u>Date</u>	<u>Reading</u>	<u>Slide Show</u>	<u>Exercises</u>
Week 1			
9/8	None	Syllabus	None
9/10	1.1-1.9	2	1A-1C
Week 2			
9/15	2.1-2.13	3	2A-2C
9/17	3.1-3.5	4	3A-3D
Week 3			
9/22	4.1-4.17	5	4A-4B
9/24	4.18-4.23	6	4C
Week 4			

9/29	4.24-4.25	7	4D
10/1	EXAM 1	EXAM 1	EXAM 1
Week 5			
10/6	5.1-5.5	9	5A
10/8	5.6-5.8	10	5B-5C
Week 6			
10/13	No Class. Monday Schedule		
10/15	5.9-5.10	11	5D-5E
Week 7			
10/20	5.11-5.12	12	5F
10/22	5.13-5.14	13	5G(91-96)
Week 8			
10/27	EXAM 2	EXAM 2	EXAM 2
10/29	6.1-6.10	15	6A-6D
Week 9			
11/3	6.11-6.16	16	6E-6G
11/5	6.17-6.20	17	6H-6I
Week 10			
11/10	7.1-7.4	18	7A-7B
11/12	7.4-7.5	19	7C-7D
Week 11			
11/17	EXAM 3	EXAM 3	EXAM 3
11/19	8.1-8.6, 8.13	21	8A-8B
Week 12			
11/24	8.7-8.9	22	8C-8D
11/27	No Class. Thanksgiving Break.		
Week 13			
11/31	8.10-8.12	23	8E-8F
12/2	8.13	24	8G
Week 14			
12/7	EXAM 4	EXAM 4	EXAM 4
12/9	REVIEW	REVIEW	REVIEW
Week 15			
12/14	FINALS WEEK Optional exams due.		

**Module 1 covers the material leading up to Exam 1, Module 2 covers the material leading up to Exam 2, and so on.**