

# Philosophy 313

## Introductory Symbolic Logic

MWF 11–12

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### COURSE DESCRIPTION

This course is an introduction to the use of formal logical techniques in the analysis of arguments and texts. We will begin by examining the logic of natural human languages like English, and then develop a canonical formal logic language of sentential logic. We will then develop several specialized branches of logic, including modal logic (the logic of possibility and necessity), counterfactual logic, deontic logic (the logic of moral obligation), and multi-valued logic. Finally, we will examine quantified logic, a more powerful extension of sentential logic. We will focus throughout on acquiring a real ability to use the formal devices as a tool in real-world reasoning, and on gaining insight into how one develops formal logical tools and what analytic virtues come with those tools.

**University E-Mail Policy:** All students should become familiar with the University's official e-mail student notification policy at:

<http://www.utexas.edu/its/policies/emailnotify.php>

### BOOKS

— Daniel Bonevac, *Deduction: Introductory Symbolic Logic*, 2<sup>nd</sup> edition, Blackwell

### GRADES

Grades can be obtained using Blackboard and will be determined as follows:

1. 6 homework assignments: 7.5 % each
2. 2 in-class exams: 12.5% each
3. 1 final exam: 25%
4. Class participation: 5%

Homework assignments typically consist of several multi-part questions designed to test your knowledge of the material currently covered in class. Unless you have a valid and documented excuse (see below), late homeworks will be 10 points off for each day they are late.

The in-class exams will be very similar to the homework assignments in structure and content, though any material covered prior to the test may appear on the test.

The final exam is cumulative, and will consist of multi-part questions designed to test your knowledge of a range of concepts and skills, from simple definitions to natural deduction proofs in sentential, quantified, and modal logic.

The grade for class participation will depend on your performance during discussion sections and be determined by your teaching assistant.

I will not hold you to a strict attendance policy. However, success in this class will require constant attention throughout the semester. Students who let a week slide (or who take a vacation from the homework exercises) frequently never manage to catch up. Parts of this class will seem to some of you to be painfully simple, but almost everyone will find some parts quite difficult. So do not get overconfident—keep up with your homework and attendance.

Your letter grade will be determined by your final numerical grade. I do not plan on using the plus/minus system, but reserve the right to assign plus/minus grades when it comes to deciding borderline cases.

### MAKEUPS

If you have a valid medical, religious, or some other reason for missing a deadline or exam, please notify me as far in advance as possible. Please note, however, that it is the policy of the University of Texas at Austin that you must notify your instructor at least fourteen days prior to the classes scheduled on dates you will be absent to observe a religious holiday. In order to reschedule any missed exam, you are expected to provide me with the appropriate paperwork within 48 hours of your absence. I will not give incompletes.

### SCHOLASTIC DISHONESTY

Scholastic Dishonesty on any assignment will result in a failing grade (F) for that assignment which may not be dropped. Any further scholastic dishonesty will result in a referral to the office of the dean. Scholastic Dishonesty includes any kind of cheating. Students are expected to abide by the standards of academic conduct of the University of Texas at Austin, as detailed at:

<http://www.utexas.edu/student/registrar/catalogs/gi06-07/app/appc11.html#Subchapter.11-800>

### DISABILITIES

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact Services for Students with Disabilities at 471-6259 (voice) or 232-2937 (video phone). More information can also be found at:

<http://deanofstudents.utexas.edu/ssd/>

### ROADMAP

The following schedule provides an overview over the topics that we will address during this semester, as well as the assigned readings and important dates. Please do the assigned reading before the lecture discussion of it.

All readings are from Bonevac's *Deduction*

Date	Topic	Reading	Notes
01/20	Basic Concepts of Logic I	Ch. 1	
01/22	Basic Concepts of Logic II		
01/25	Natural Language Formalized I	Ch. 2	
01/27	Natural Language Formalized II		
01/29	Natural Language Formalized III		
02/01	Truth Tables I		
02/03	Truth Tables II		
02/05	Truth Tables III		HOMEWORK # 1 DUE

02/08	Truth Trees I	Ch. 3	
02/10	Truth-Trees II		
02/12	Natural Deduction I	Ch. 4	
02/15	Natural Deduction II		
02/17	Natural Deduction III		
02/19	Natural Deduction IV		HOMEWORK # 2 DUE
02/22	FIRST EXAM		
02/24	Multi-valued Logic I	Ch. 10.1, 10.2	
02/26	Multi-valued Logic II		
03/01	Expressive Power		
03/03	Vagueness		
03/05	Modal Logic I	Ch. 9	
03/08	Modal Logic II		
03/10	Modal Logic III		
03/12	Modal Logic IV		HOMEWORK # 3 DUE
03/15	Spring Break		
03/17	Spring Break		
03/19	Spring Break		
03/22	Possible Worlds Logics I	Ch. 11	
03/24	Possible Worlds Logics II		
03/26	Possible Worlds Logics III		HOMEWORK # 4 DUE
03/29	SECOND EXAM		
03/31	Conditionals I	Ch. 12	
04/02	Conditionals II		
04/05	Conditionals III		
04/07	Conditionals IV		
04/09	Quantifiers I	Ch. 5	
04/12	Quantifiers II		HOMEWORK # 5 DUE
04/14	Quantified Truth Trees I	Ch. 6	
04/16	Quantified Truth Trees II		
04/19	Quantified Natural Deduction I	Ch. 7	
04/21	Quantified Natural Deduction II		
04/23	Quantified Natural Deduction III		
04/26	Quantified Natural Deduction IV		
04/28	Identity and Function Symbols I	Ch. 8	
04/30	Identity and Function Symbols III		
05/03	Identity and Function Symbols III		HOMEWORK # 6 DUE
05/05	Summary and Outlook		
05/07	Summary and Outlook		

**Final Exam to be scheduled by Registrar**