

Syllabus
Philosophy 3505 (Undergraduate Section)
Modern Logic and Dev (First-Order Logic)

Dr. Brian Epstein

Required text: *Language, Proof and Logic*, by Barwise and Etchemendy

Web sites:

Language, Proof and Logic website – <http://www-csli.stanford.edu/LPL>

Schedule:

Propositional logic (aka sentential or statement logic)

Week 1: Basic concepts

8/26	General introduction to logic and formal languages	
8/28	Atomic sentences	Ch. 1

Week 2: Propositions

9/2	The logic of atomic sentences	Ch. 2
9/4	The Boolean connectives	Ch. 3

Week 3: No class

Week 4: The logic of Boolean connectives

9/16	Tautologies and logical truth	4.1, 4.2
9/18	Equivalence and consequence, normal forms	4.3, 4.4, 4.5, 4.6

Week 5:

9/23 **Midterm 1**

Proofs in propositional logic

9/25	Formal proofs, conjunction and disjunction	6.1, 6.2
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Week 6: Formal proof methods

9/30	No class	
10/2	Negation rules, subproofs	6.3, 6.4

Week 7: Conditionals

10/7	Material conditional and biconditional	Ch. 7
10/9	No class	

Week 8: Finishing off propositional logic

10/14	Proofs with conditionals	8.1, 8.2
10/16	Midterm 2	

Predicate Logic (or First-Order Logic)

Week 9: Introduction to Quantification

10/21	Wffs and quantifiers	9.1, 9.2
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10/23	Quantifier semantics and translation	9.3, 9.4
Week 10: The Logic of Quantifiers		
10/28	Translation, tautologies, first order validity	9.5, 9.6, 10.1
10/30	Testing for validity and consequence	10.2, 10.3, 10.4
Week 11: Translation and Quantifiers		
11/4	Multiple and mixed quantifiers	11.1, 11.2, 11.3
11/6	English translation	11.3, 11.4, 11.5
Week 12: Mixed quantifiers		
11/11	Prenex form, more translation	11.7, 11.8
11/13	Midterm 3	
<i>Proofs in Predicate Logic</i>		
Week 13: Proofs with Quantifiers		
11/18	Methods of proof	12.1, 12.2, 12.3, 12.4
11/20	Universal and existential quantifier rules	13.1, 13.2
Thanksgiving 11/24-11/28 (Practice your proofs!)		
Week 14: Complex quantifiers		
12/2	Strategy and more proofs	13.3, 13.5
12/4	Other determiners and the limits of FOL	14.3, 14.4
Week 15:		
12/9	Final test	

Grades:

Tests: 60%

Homework: 40%

Homework:

- Late homework will not be accepted. Late homework will not be accepted. If you have a conflict the day before a homework is due, get it done early. Late homework will not be accepted.
- There will be no mercy on this point. Late homework will not be accepted.
- Your lowest homework grade will be dropped.
- You are *encouraged* to work on the homework in pairs or small groups. But you **must** write up/submit your homework independently. Timestamps will be checked.

Blackboard:

- Announcements and homework assignments will be posted on Blackboard. (www.learn.vt.edu).
- There is also a discussion board on Blackboard, which the TA and I will visit frequently.
- You should expect that the discussion board will be more responsive than emailing us directly, particularly on issues that pertain to course material. Before emailing me or the TA, decide if you can post the question to the discussion threads, so that other people can benefit from it.

Tests / exams:

- There will be four tests over the course of the semester. The final test will concentrate on the last part of the course, but I reserve the right to include material from earlier parts of the course.
- You must take all the exams in order to pass the course.
- Don't skip, forget, sleep through, or otherwise miss the test; you will not be allowed to make it up. Also, don't ask to postpone the test unless there's a true emergency. Failing to be prepared for the test doesn't constitute an emergency.
- The only makeup tests will be in case of a documented illness or other emergency. If you are sick, let me know in advance unless it is a sudden emergency. In any case, medical or other documentation is required to allow for a makeup.

Policies:

- Attendance is required.
- You are expected to have read the assigned material for that day.
- The schedule may change, so check the website for announcements.
- You are expected to abide by the Honor Code.

The Honor Code is the University policy which expressly forbids the following academic violations:

- Cheating -- Cheating includes the actual giving or receiving of any unauthorized aid or assistance or the actual giving or receiving of any unfair advantage on any form of academic work, or attempts thereof.
- Plagiarism -- Plagiarism includes the copying of the language, structure, ideas and/or thoughts of another and passing off same as one's own, original work, or attempts thereof.
- Falsification -- Falsification includes the statement of any untruth, either verbally or in writing, with respect to any circumstances relevant to one's academic work, or attempts thereof. Such acts include, but are not limited to, the forgery of official signatures, tampering with official records, fraudulently adding or deleting information on academic documents such as add/drop requests, or fraudulently changing an examination or other academic work after the testing period or due date of the assignment.