PHIL 151: First-Order Logic (Winter 2009)

ai.stanford.edu/~epacuit/classes/phil151winter09.html

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Office Hours:	W 3 - 4:30
Class Times:	MWF 10 - 10:50
Class Location:	260-113

Course Description

The aim of the course is to introduce you to the kinds of questions logicians ask about logics, the *meta-theory* of logic. To illustrate these questions, we will use propositional logic (PL), modal logic (ML) and first-order logic (FOL). All these logics are important in philosophy, computer science, AI, linguistics and mathematics. We will discuss syntax & semantics of these logics, logical consequence, axiomatic systems, compactness, definability, completeness & computability and the relationship between these logics.

Literature (Required)

- **A Mathematical Introduction to Logic** (second edition) by Herbert Enderton, Academic Press (2002).

- Chapters from a draft of a new textbook by Johan van Benthem on Modal Logic (to be made available in class).

Prerequisites

PHIL 150 or consent of the instructor.

Course Webpage

Be sure to consult the course web page (give above) regularly for the up-to-date course schedule, additional reading materials, announcement, etc.

Grading Policy

Homework assignments count for 50%, midterm 20% and final exam 30%. The lowest homework assignment will be dropped from the final tally, and you may hand in one homework assignment one class late. Otherwise, late homework will not be accepted. Midterm and final exam are take-home. Homeworks and the midterm are due at the beginning of class on Friday. Solutions will be made available at Tanner Library the following Monday or Wednesday after the assignment is due.

For the midterm and final exams, you may NOT collaborate with others in any way. For the homework assignments, you are encouraged to work in small groups. You may discuss the problems with one another or with me or the TAs as much as you want. *But you must always do the final write-up completely on you own.* A good strategy when working together is to use a blackboard and erase it completely before writing up your (separate) answers. Please write the name of your discussion partners on the front page of your homework assignments.

Schedule

We will cover the first two chapters of Enderton's book, with the exception of sections 1.3, 2.3, 2.7 and 2.8, plus a number of topics about modal logic (reading material will be provided in class). The idea is to roughly spend 2 weeks on propositional logic (chapter 1 of Enderton), 3 weeks on modal logic (handouts) and 5 weeks on first-order logic (chapter 2 of Enderton). A more detailed schedule will be maintained on the course website. You should consult chapter 0 of Enderton on basic (and not so basic) facts about sets etc. as we go along.