

PHILOSOPHY 173—Spring 2008
LOGIC AND CRITICAL THINKING

Dr. Donald R. Gregory

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In this course we will examine the techniques used to distinguish successful from unsuccessful reasoning. We will take a close look at recent developments in symbolic logic, but we will not ignore the ancient (and still helpful) Aristotelian account of the syllogism from which all later developments came. We will discuss the sense in which logic involves analytical reasoning skills, as well as the strengths and limitations of logic. Where is logic helpful-- and where is it unhelpful?

TEXTBOOK:

Gregory, Mind Your Logic, Kendall/Hunt Publishing Company. **(2007 edition is preferred, but a used copy of earlier editions is acceptable.)**

SYLLABUS: (Specific assignments to be made in class):

Unit One: The Study of Logic: Some Basic Distinctions

We will learn what an argument is, as logicians understand that term, and distinguish the two major kinds of arguments from each other. Attention will also be given to distinguishing various uses of language. Terms such as "valid," "invalid," "sound," "statement," "induction," "deduction," etc. will be discussed in detail.

Readings: pp. 1-22.

Unit Two: Categorical Logic

Here we will study traditional logic, also known as "categorical" or "Aristotelian" logic. We will look at this approach as a way to understand, analyze, and evaluate familiar patterns of reasoning. The categorical proposition and the categorical syllogism, the "Square of Opposition," Venn Diagrams, and the rules of syllogistic inference will be among the topics covered.

Readings: pp. 39-87.

Unit Three: Truth-Functional Logic

The nature of symbolic or truth-functional logic will be discussed, and the various truth-functional symbols introduced. The truth-table method of testing arguments for validity will be presented. Tautologies, self-contradictions, and contingent statements will be discussed.

Readings: pp. 89-126.

Unit Four: The Method of Deduction

We will learn a method to demonstrate the validity of arguments which involves the construction of formal, rigorous proofs which use truth-functional symbols. The distinction between this method and the truth-table technique of Unit Two will be discussed. Some further issues about the meaning of validity will be considered as well.

Readings: pp. 127-137 (possible additional assignment beyond p. 137, TBA).

GRADING AND ATTENDANCE:

There will be three examinations, each counting one-third of the course grade. The exams will be given on the following days: March 4, April 15, and May 1. *Any changes to the scheduled dates will be announced in class.* The University's Honor code will be enforced at examinations. There is no "final" examination, so May 1 is the last day the class will meet. **Attendance at examinations is mandatory, and make-ups are not normally given.** If, for a VERY SERIOUS REASON, it is necessary for a student to miss an examination, the instructor will consider a special make-up ONLY IF notification is given as early as possible, and IN NO CASE LATER THAN THE DAY OF THE EXAMINATION.

Keep in mind the importance of class attendance in this type of skills-oriented course. The same study skills which you employ in mathematics classes will be appropriate here. While there is no penalty for missing classes (other than the examinations), this can cause later material to be much more difficult. You are responsible all material covered in class, whether you are in attendance or not. There will be a substantial review in class before each examination.

Please note **that the class will not meet on Thursday, April 10.** I will be at a conference that day.