

This course is now offered as PHI 113, per memorandum 4/4/2005.

COURSE OUTLINE

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|--|---|---|--|---------------------------------------|
| <u>PHI 101</u> Course Number | <u>Logic</u> Course Title | <u>3</u> Credits | | |
| <u>3/week</u> Class or Lecture Hours | <u>0/week</u> Laboratory Work Hours Experience | <u>0/week</u> Laboratory, Shop, Studio or Clinic Hours | <u>0/week</u> Work Experience Hours | <u>15 weeks</u> Semester Length |
| <u>Not Applicable</u> Performance on an Examination/Demonstration | | | <u>Not Applicable</u> Telecourse | |

Required Materials:

Text: Irving Copi & Carl Coehen, *Introduction to Logic*, 10th ed., 1998

Catalog Description:

An introduction to the techniques of critical analysis and the rules governing logical thinking. Topics include the synthetic-analytic distinction, language and logic, fallacies underlying arguments, inductive and deductive logic, symbolic notation, and propositional logic.

Latest Review: Fall 1999

Prerequisites: None

Corequisites: None

Course Coordinator: Saul Goldwasser

I. Method of Evaluation

There will be 4 one-hour examinations scheduled during the semester. Exams will be composed of short answer, essay and problem-solving questions.

The assignment of grades reflects the following breakdown:

Hour Exams - 100% With lowest grade dropped except for the grade of A

II. Media and Materials Used in the Course:

1. Transparencies of certain logical problems and outlines of lectures are used.
2. Much of the work of the course is the result of the students own work in solving logical problems; therefore, blackboard work by the student is an essential aspect of this course.
3. On occasion, closed circuit TV is utilized. Students analyze selected speeches.

III. The Organization of the Course:

A. Strategy of the Course.

The student is introduced to logical analysis by first having the professor perform critical analysis upon the popular media, i.e., newspaper articles and editorials, magazine articles, t.v. commercials, etc. The student is encouraged to join in and participate in such analysis.

The principles by which these early criticism depended upon are then made clear, along with the language of logic. Certain terms are then defined, certain principles by which thought operates are made clear, and the significance of careful logical analysis made apparent in so far as it effects all areas of thought.

After this initial introduction, the distinction between deductive and inductive logic is made clear. The difficulty of ordinary language as it relates to logical analysis and communication is made clear. The student then learns how to develop deductive arguments through the solving of certain selective problems. After studying classical logic, the student learns the operations of symbolic logic and how symbolic notation enables him to deal with much more complex arguments than were possible using Aristotelian logic (classical logic).

Finally, the student is introduced to the fundamentals of inductive logic.

B. Weekly Class Schedule by Topic:

1. Introduction to Logical Analysis
2. The Language of Logic
3. Deductive and Inductive Logic
4. The Informal (Pre-Logical) Fallacies
5. Definition and Language
6. Immediate Inferences
7. The Traditional Square of Opposition
8. Obversion, Conversion and Contraposition
9. Syllogism
10. Venn Diagrams
11. Symbolic Notation
12. Truth Tables
13. The Rules of Inference in Symbolic Logic
14. Quantification
15. Inductive Logic

IV. General Objectives:

1. The student will be able to recognize the logic of argument and conceptual analysis; he will recognize that good arguments are not accidental.
2. The student will be able to describe the major characteristics of deductive and inductive logic and the principles by which they operate.
3. The student will recognize, through the assignment of class work, that language is inherently ambiguous, and that the careful use of language is essential if one is to be understood.

4. The student will be able to recognize many arguments that are incorrect because they violate certain principles.
5. The student will be able to solve logical problems either through the use of classical, Aristotelian logic or through the use of modern symbolic logic.
6. The student will understand the function of inductive logic (scientific method) and be familiar with its application to problem solving.
7. The student should be able to discuss various ways in which logic has application to the worlds of business, science, computer technology, the liberal arts, politics, and various other areas of human activity.

V. Specific Objectives:

The student will be expected to:

1. Point out whether specific arguments are deductive or inductive and to give his own examples of each.
2. Describe the differences between the fallacies of ambiguity and the fallacies of relevance.
3. Describe and apply (by way of example) the following fallacies of relevance:
 - a. Argumentum ad Baculum
 - b. Argumentum ad Hominem (abusive)
 - c. Argumentum ad Hominem (circumstantial)
 - d. Argumentum ad Ignorantiam
 - e. Argumentum ad Misericordiam
 - f. Argumentum ad Populum
 - g. Argumentum ad Verecundiam
 - h. Accident
 - i. Converse Accident
 - j. False Cause
 - k. Petitio Principii
 - l. Complex Question
 - m. Ignoratio Elenchi

4. Describe and apply (by way of example) the following fallacies of ambiguity:
 - a. Equivocation
 - b. Amphiboly
 - c. Accent
 - d. Composition
 - e. Division
5. The student will be able to distinguish the informative, the directive and the emotive functions of language.
6. Describe various types of definitions used in overcoming the ambiguity of language.
7. Specify the difference between connotation and denotation.
8. Describe the characteristics of a categorical proposition and how these propositions are related to each other given the truth value of one of them.
9. Determine the validity or invalidity of deductive arguments (syllogisms) using three separate methods:
 - a. Refutation by logical analogy
 - b. Venn Diagrams
 - c. Rules for testing validity
10. Define truth functional connectives in symbolic logic by the use of truth tables.
11. Use truth tables to determine whether certain selected arguments are valid or invalid.
12. Use the 19 Rules of Inference of symbolic logic to determine whether an argument is valid or invalid.
13. Use quantification in symbolic logic as it applies to simple statements.
14. Describe at least three criteria for determining whether or not one is making a highly probable inductive inference.

VI. Method of Instruction:

1. Lecture method used at the beginning of each unit studied.
2. Students solve exercises on blackboard.
3. Discussion on application of logical principles.
4. Occasional use of overhead projector.