Las Positas College
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Course Outline for PHIL 6

INTRODUCTION TO LOGIC

Effective: Fall 2015

I. CATALOG DESCRIPTION:
PHIL 6 — INTRODUCTION TO LOGIC — 3.00 units

An introduction to Logic. This course is designed to develop effective reasoning skills. Valid reasoning through formal deductive logic is emphasized, but the course also covers meaning in language, fallacies, and inductive reasoning methods in philosophy, literature and the sciences.

3.00 Units Lecture

Strongly Recommended
- Eligibility for ENG 1A -

Grading Methods:
Letter Grade

Discipline:

	MIN
Lecture Hours:	54.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering this course, it is strongly recommended that the student should be able to:

A. -Eligibility for ENG 1A

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. symbolize ordinary language arguments using the operators and constants of sentential logic;
B. check for the validity of arguments using truth tables and formal rules in a system of natural deduction;
C. identify, critique and avoid both formal and informal fallacies in argumentation;
D. comprehend, utilize and apply the distinction between syntax, symantics, and conceptual content in language and arguments;
E. explain, evaluate, and apply the most basic elements of induction, confirmation, probability theory, and scientific methodology;
F. apply the various methods of critical reasoning discussed above to works of philosophy, literature, the social sciences, and other persuasive media;
G. construct arguments in essay format which employ the methods of critical reasoning listed above, while avoiding the the pitfalls of common fallacies.
H. evaluate ones own system of beliefs, assumptions, inferences and justifications using the methods of critical reasoning.

V. CONTENT:
A. Formal symbolization in sentential logic
    1. Meaning, syntax and conceptual content in ordinary language
    2. Formal conversion of ordinary language using constants and operators
B. Formal proof methodologies
    1. truth tables and Ven diagrams
    2. Basic rules of natural deduction
    3. proof strategies in natural deduction
    4. formal fallacies
C. Inductive strategies
    1. confirmation theory
    2. probability
    3. experimental design
    4. scientific methodologies
D. Informal argumentation strategies
    1. the application of formal logical rules to natural language arguments
    2. constructing clear, rational and effective arguments in natural language
    3. evaluating arguments in philosophy and literature
    4. methods of ethical argumentation

5. avoiding informal fallacies
6. evaluating our own biases, beliefs, assumptions, and justifications.

E. Improving argumentative skills and writing and speaking sytle
1. Essay struture
2. Paragraph structure
3. Peer review and self review
4. Effective oral presentation of arguments

VI. METHODS OF INSTRUCTION:
A. Problem sets done in groups and as homework
B. **Observation and Demonstration** -
C. **Lecture** -
D. Course text readings
E. **Student Presentations** -
F. Multi-media presentations & analysis
G. **Discussion** -

VII. TYPICAL ASSIGNMENTS:
A. Problem sets
1. Example: Formalize the following arguments using the operators and constants of sentential logic and prove their validity or invalidity using the system of natural deduction

B. Essays
1. Example: Analyze the argument in Plago's Eythyphro, and create a structured 5 paragraph essay that explains Plato's main argumentative strategy and evaluates the effectiveness of his argument. Note places where Plato committs formal or informal fallacies in his reasoning.

C. Homework
1. Evaluate an article in popular media reporting on a scientific discovery. Analyze the use of scientific reasoning, probabaility, experimental design, and/or induction presented in the article.

D. Class presentations
1. As a group, develop a sound argument on a controversial claim approved by the instructor. Use at least 3 sources, and the methods of reasoning and argument development covered in class. Present the argument to the class in a 15 minute presentation, and hand out an outline of each group members argument to each member of our class. Please allow 10 minutes at the end of your presentation to respond to challenges made to your argumentative methodology by your fellow students.

E. Reading
1. Read chapter 1 in our logic textbook and be prepared to discuss the difference between syntax, semantics, and conceptual content.

VIII. EVALUATION:
A. **Methods**

1. Exams/Tests
2. Quizzes
3. Papers
4. Oral Presentation
5. Projects
6. Group Projects
7. Class Participation
8. Class Work
9. Home Work

B. **Frequency**

1. At least one midterm and a final exam
2. Quizzes given as appropriate in the course
3. At least 2 papers will be assigned
4. At least 1 oral project, group project, or student project will be assigned
5. Evaluatiion will involve some combination of class participation, class work, and/or homework as determined by the instructor.

IX. TYPICAL TEXTS:
1. Copi, I. M. *Logic* . 14th edition ed., Prentice Hall, 2011.
2. Herrick, P. *Introduction to Logic.*, Oxford University Press, 2012.
3. Hurley, P. J. *A Concise Introduction to Logic.* 11th edition ed., Wadsworth/Thompson, 2011.

X. OTHER MATERIALS REQUIRED OF STUDENTS:
A. None