

Las Positas College  
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## Course Outline for PHIL 6

### INTRODUCTION TO LOGIC

Effective: Fall 2019

#### 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 or P/NP

#### **Discipline:**

- Philosophy

	<b>MIN</b>
<b>Lecture Hours:</b>	54.00
<b>Expected Outside of Class Hours:</b>	108.00
<b>Total Hours:</b>	162.00

#### 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
1. Use strategies to assess a text's difficulty, purpose, and main idea prior to the act of reading
  2. Annotate a text during the act of reading
  3. Employ strategies that enable a critical evaluation of a text
  4. Respond critically to a text through class discussions and writing
  5. Use concepts of paragraph and essay structure and development to analyze his/her own and others' essays
  6. Write effective summaries of texts that avoid wording and sentence structure of the original
  7. Respond to texts drawing on personal experience and other texts
  8. Organize coherent essays around a central idea or a position
  9. Apply structural elements in writing that are appropriate to the audience and purpose
  10. Provide appropriate and accurate evidence to support positions and conclusions
  11. Produce written work that reflects academic integrity and responsibility, particularly when integrating the exact language and ideas of an outside text into one's own writing
  12. Utilize effective grammar recall to check sentences for correct grammar and mechanics
  13. Proofread his/her own and others' prose

#### 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, semantics, 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 pitfalls of common fallacies
- H. Evaluate one's 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. avoiding informal fallacies
  - 4. evaluating our own biases, beliefs, assumptions, and justifications.
- E. The role of logic in humanities disciplines
  - 1. analyzing arguments in philosophy
    - a. arguments in historical and contemporary ethical philosophy
    - b. arguments in historical and contemporary political philosophy
    - c. arguments in historical and contemporary metaphysics
  - 2. analyzing arguments in literature
    - a. arguments with fictional narrative
    - b. argument using metaphor
- F. Logic and culture
  - 1. Non-western approaches to logic
  - 2. Feminist approaches to logic

## VI. METHODS OF INSTRUCTION:

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

## 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 Plato's *Euthyphro*, 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 commits 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, probability, 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:

### Methods/Frequency

- A. Exams/Tests
  - 2-3
- B. Quizzes
  - 2-5
- C. Papers
  - 3-5
- D. Oral Presentation
  - 1
- E. Projects
  - 1-2
- F. Group Projects
  - 1-2
- G. Class Participation
  - weekly
- H. Class Work
  - weekly
- I. Home Work
  - weekly

## IX. TYPICAL TEXTS:

- 1. Baranett, Stan. *Logic*. 3rd ed., Oxford University Press: USA, 2016.
- 2. Herrick, Paul. *Introduction to Logic*. 1st ed., Oxford University Press, 2012.
- 3. Hurley, Patrick. *A Concise Introduction to Logic*. 13th ed., Wadsworth/Thompson, 2018.
- 4. Wolf, Jonathan. *Readings in Moral Philosophy*. 1st ed., W. W. Norton, 2017.
- 5. Cahn, Steven. *Exploring Philosophy: An Introductory Anthology*. 6th ed., Oxford University Press: USA, 2017.

X. OTHER MATERIALS REQUIRED OF STUDENTS: