PHIL C115: LOGIC AND CRITICAL THINKING

Item	Value
Curriculum Committee Approval Date	06/09/1979
Top Code	150900 - Philosophy
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)
Local General Education (GE)	• CL Option 1 Arts and Humanities (CC2)
California State University General Education Breadth (CSU GE-Breadth)	• CSU A3 Critical Thinking (A3)

Course Description

An introductory general education course focusing on the use of arguments both in ordinary discourse and the academic disciplines within the humanities, social sciences, and natural sciences. The course is split between informal and deductive/formal logic. The emphasis for informal logic will be on its role for the basic learning skills of fallacy identification, written communication (reading/writing), and then bringing these skills to bear in practical ways. The emphasis for deductive logic will involve truth tables, categorical logic, and propositional logic, including proofs. Recommended for all humanities, social science, business, and natural science majors and those planning to transfer to a four-year college or university. Transfer Credit: CSU; UC. C-ID: PHIL 110.**C-ID:** PHIL 110.

Course Level Student Learning Outcome(s)

1. Identify and explain the structure of deductive and inductive reasoning.
2. Demonstrate the ability to apply formal logic methods including translation, truth functional connectives, truth tables, propositional/sentential logic, and proofs/natural deduction.
3. Apply formal semantic concepts such as validity, entailment, logical equivalence, and others.
4. Explain and identify common informal fallacies such as ad populum, straw man, slippery slope, and false dichotomy.

Course Objectives

- 1. Identify deductive and inductive argumentation and know the differences.
- I Formal Logic:
- I. 1. Translate natural language into the symbolic language of truth functional logic.
- I. 2. Analyze the structure of arguments, including the distinction between formal and informal arguments, as well as distinguish premises from conclusions.
- I. 3. Design truth tables to test for semantic concepts such as entailment and logical equivalence.
- I. 4. Utilize truth-functional connective in truth tables, proofs, and translations.
- I. 5. Employ key rules of inference as part of proofs in sentential logic.
- I. 6. Identify necessary and sufficient conditions, tautologies, and contradictions.
- II Informal Logic:
- II. 1. Explain and identify the most common forms of informal fallacies.
- II. 2. Analyze arguments for strength and cogency.
- II. 3. Distinguish the parts of an argument.
- II. 4. Demonstrate the skills and practices that go into deciding whether to accept, reject, or withhold judgment on a claim.
- II. 5. Analyze, assess, and evaluate the credibility of news media, internet sources, and/or other real-world sources of arguments.

Lecture Content

Intro + Formal Logic What is an argument. Argument parts Basic definitions and associated concepts Validity and Soundness Induction vs deduction Validity/Soundness Strength/Cogency Truth functional and sentential/propositional logic TFL sentences Propositional/ Sentential logic Connectives And/Or/Not/Material Conditional Necessary and sufficient conditions Full and partial truth table and truth table tests Entailment and Logical Equivalence Rules of inferences Proofs Tautologies and contradictions Categorical Logic (May include) Venn Diagrams A/E/I/O propositions Square of opposition Inductive/ Informal logic Statistical fallacies and analysis. Arguments from analogy Explanatory Virtues Probability Informal fallacies such as: Straw Man Ad Populum Appeal to Ignorance Ad Hominem Composition Division False Dichotomy Slippery Slope And others. Proper and improper uses of authority Application/Real-World Analysis Science vs Pseudoscience Psychological Impediments to Cogent Reasoning Analyzing the news, ads, or other media.

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)
- Video one-way (ITV, video) (63)
- Cable (CA)

Instructional Techniques

Methods of instruction may include the following: PowerPoint lectures or Video Lectures In-class group work Class discussion In-class game/ simulations

Reading Assignments

Reading assignments will primarily consist of book chapters. They may also include additional articles, external links, interaction with the written work of other students, and the reading necessary for independent research.

Writing Assignments

Tests and quizzes may require essay answers. Instructors should include one writing assignment which may be an argumentative essay or other substantial writing assignment, such as identification and explanation of fallacies found in a writing sample.

Out-of-class Assignments

In the formal logic section this may include formal logic exercises, truth tables, and proofs. For the informal sections this may include finding real-world examples of fallacies, analyzing natural language arguments, media, or other tasks.

Demonstration of Critical Thinking

Read and analyze texts. Exhibit critical thinking during class discussions about logic, valid and invalid premises, audience, purpose, persuasive techniques, philosophical stance, and other elements of sound argumentation. Complete truth tables and proofs.

Required Writing, Problem Solving, Skills Demonstration

Discussion forum posts, and argument analysis. One writing assignment, such as fallacy identification and explanation for a sample source, or argumentative essay.

Eligible Disciplines

Philosophy: Masters degree in philosophy OR bachelors degree in philosophy AND masters degree in humanities or religious studies, OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Govier, Trudy. A Practical Study of Argument, 7th ed. Cengage Learning, 2013 Rationale: - Legacy Textbook Transfer Data: Legacy text 2. Required Bassham, Gregory; Irwin, William; Nardone, Henry Wallace, James M. Critical Thinking: A Students Introduction with PowerWeb: Critical Thinking, 5th ed. McGraw-Hill, 2012 Rationale: - Legacy Textbook Transfer Data: Legacy text 3. Required Salmon, Merrilee H. Introduction to Logic and Critical Thinking, 6th ed. Cengage Learning, 2012 Rationale: - Legacy Textbook Transfer Data: Legacy text 4. Required Copi, Irving M.; Cohen, Carl. Introduction to Logic, 14th ed. Prentice Hall, 2010 Rationale: - Legacy Textbook Transfer Data: Legacy text 5. Required Kahane, Howard; Cavender, Nancy M. Logic and Contemporary Rhetoric: The Use of Reason in Everyday Life (with Info Trac), 13th ed. Cengage Learning, 2018 Rationale: - 6. Required Lewis Vaughn. The Power of Critical Thinking, 4th ed. Oxford University Press, 2012 Rationale: - Legacy Textbook Transfer Data: Legacy text 7. Required Schick, Theodore; Vaughn, Lewis. How to Think About Weird Things: Critical Thinking for a New Age, 7th ed. McGraw-Hill, 2013 Rationale: - Legacy Textbook Transfer Data: Legacy text 8. Required Young, Martin C. The Art of Thinking, ed. Self-published, 2013 Rationale: - Legacy Textbook Transfer Data: Legacy text 9. Required Sinnot-Armstrong, W.; Fogelin, R. J. Understanding Arguments, Concise Edition, 9th ed. Cengage Advantage Books, 2014 Rationale: - Legacy Textbook Transfer Data: Legacy text 10. Required Van Cleave, Matthew. Introduction to Logic and Critical Thinking, 2016 ed. https://open.umn.edu/opentextbooks/textbooks/457: OER. Can be found in Open Textbook Library, 2016

Other Resources

1. Coastline Library 2. Students may be required to purchase software or create a free account for web-based, augmented student materials.