

Course Title: Logic and Critical Thinking

Course Code: APHL-111

Course Type: Interdisciplinary

Subject: Philosophy

Credit Hours: 3

Pre-requisites: None

Introduction

This course is designed to develop and sharpen students critical thinking skills. The main thrust will be on analysing and constructing both inductive and deductive arguments. Critical reasoning will be applied to a variety of situations such as making sound decisions, evaluating claims and avoiding fallacious reasoning.

Objectives

The course will bolster the critical thinking skills in students to expose fallacies and bad reasoning, that they can also be used to support other viewpoints, and to cooperate with others in solving problems and acquiring knowledge.

Course Contents

1. Introduction to Logical and Critical Thinking

- a. What is Critical Thinking?
- b. Basic Concepts of Logical Thinking
- c. Argument, Premises, and Conclusions
- d. Recognising arguments
- e. Deduction and Induction
- f. Validity, Truth, Soundness, Strength, Cogency

2. Categorical Propositions

- a. The Components of Categorical Propositions
- b. Quality, Quantity, and Distribution
- c. Venn Diagram and the Modern Square of Opposition
- d. Conversion, Obversion, and Contraposition
- e. Venn Diagram and the traditional Standpoint
- f. Translating Ordinary Language Statements into Logical Forms

3. Categorical Syllogisms

- a. Standard Mood, Form, and Figure
- b. Venn Diagrams
- c. Rules and Fallacies
- d. Reducing the Number of Terms
- e. Ordinary Language Arguments

4. Propositional Logic

- a. Symbols and Translations

- b. Truth Functions
- c. Truth Tables for Propositions
- d. Truth Tables for Arguments

5. Natural Deduction in Propositional Logic

- a. Rules of Implication-I
- b. Rules of Implication-II

6. Induction

- a. Analogy and Its applications
- b. Causality and Mill's Methods
- c. Hypothetical / Scientific Reasoning
- d. Science and Superstition

Textbooks:

1. Copi, Irving M. 2014. *An Introduction to Logic*. 14th edition. London: Pearson Education.
2. Hurley, Patrick J. 2006. *A Concise Introduction to Logic*. 9th edition. Australia: Thomson / Wadsworth.

Recommended Books

1. Greic, Joseph. 2006. *Logic and Life: An Introduction to Applied Logic and Critical Thinking*. Boston: Pearson Education.
2. Layman, Charles S. 2000. *The Power of Logic*. London: Mayfield Publishers.
3. Stanley, Maurice. 2001. *Logic and Controversy*. London: Wadsworth.