

**SAN DIEGO COMMUNITY COLLEGE DISTRICT
 CITY, MESA, AND MIRAMAR COLLEGES
 ASSOCIATE DEGREE COURSE OUTLINE**

SECTION I

SUBJECT AREA AND COURSE NUMBER: Philosophy 101

COURSE TITLE:

Symbolic Logic

Units:

3

Letter Grade or Pass/No Pass Option

CATALOG COURSE DESCRIPTION:

This course is a study of the elements of symbolic logic, sentential calculus and quantification theory. Topics include identity, definite descriptions, natural deduction and structure of language. This course is intended for philosophy majors and students pursuing studies in computer science.

REQUISITES:

Prerequisite:

PHIL 100 with a grade of "C" or better, or equivalent

Advisory:

ENGL 101 with a grade of "C" or better, or equivalent or Assessment Skill Level R6/W6
 and
 MATH 096 with a grade of "C" or better, or equivalent or Assessment Skill Level M50

FIELD TRIP REQUIREMENTS:

May be required

TRANSFER APPLICABILITY:

Associate Degree Credit & transfer to CSU CSU General Education UC Transfer Course List

CID:

PHIL 210

TOTAL LECTURE HOURS:

48 - 54

TOTAL LAB HOURS:

STUDENT LEARNING OBJECTIVES:

Upon successful completion of the course the student will be able to:

1. Identify and describe the rules of inference.
2. Identify, describe and/or formulate the terminology commonly used to designate the symbolic formulation of inference and logically equivalent expressions.
3. Critically evaluate formal arguments.
4. Prove the validity and invalidity of deductive arguments in formal/symbolic notation.
5. Compare and contrast deductive techniques in predicate logic with formal proofs of modern symbolic

and sentential logic.

6. Identify and/or describe the philosophical foundation presupposed in modern, symbolic logic.
7. Trace the implications of assumptions through the use of the techniques of symbolic logic.
8. Provide significant examples of issues drawn from everyday life which may require the use of techniques/methods studied in the course.

SECTION II

1. COURSE OUTLINE AND SCOPE:

A. Outline Of Topics:

The following topics are included in the framework of the course but are not intended as limits on content. The order of presentation and relative emphasis will vary with each instructor.

- I. Overview of Logic in general
 - A. Arguments and their elements
 1. Conclusions
 2. Premises
 3. Indicators
 - B. Recognizing Arguments
 1. Inferential discourse
 2. Non-inferential discourse
 - C. Basic Types of Argument
 1. Deduction
 2. Induction
 - D. Significant notions and nomenclature
 1. Truth
 2. Soundness
 3. Strength
 4. Cogency
- II. Categorical Propositions
 - A. Components of Categorical Propositions
 1. Subject term
 2. Predicate term
 3. Copula
 - B. Attributes of Categorical Propositions
 1. Quality
 2. Quantity
 3. Distribution
- III. Venn Diagrams and the Modern Square of Opposition
- IV. Translating Ordinary Language in logical form
- V. Propositional Logic
 - A. Symbols and Translation
 - B. Truth Function
 - C. Truth Tables for Propositions
 - D. Truth Tables for Arguments
 - E. Indirect Truth Tables
 - F. Argument Forms and Fallacies
- VI. Natural Deduction in Propositional Logic
 - A. Rules of Implication
 - B. Rules of Replacement
 - C. Conditional Proof
 - D. Indirect Proof
 - E. Proving Logical Truths
- VII. Predicate Logic
 - A. Symbols and Translation
 - B. Using Rules of Inference
 - C. Change of Quantifier Rules
 - D. Conditional and Indirect Proof

- E. Proving Invalidity
- F. Relational Predicates and Overlapping Quantifiers
- G. Identity

B. Reading Assignments:

Reading assignments are required and may include but, are not limited to, the following:

- I. Assigned college level texts or anthologies related to the study of symbolic logic.
- II. Reading materials drawn from everyday life which may require the use of methods used in the course.
- III. Original works by representative philosophers.
- IV. Descriptive secondary materials and critiques.
- V. Professional journals such as The Journal of Symbolic Logic.
- VI. Periodicals such as Scientific American
- VII. Internet sources of news and information such as Stanford Encyclopedia of philosophy.

C. Writing Assignments:

Writing assignments are required and may include, but are not limited to, the following:

- I. Short essays which require the application of various models describing, analyzing, and evaluating the topics associated with the study of symbolic logic.
- II. Essays that describe and/or critique a position relating to the topics in symbolic logic.
- III. Position papers in which the student articulates, analyzes and compares her/his beliefs using the methods of symbolic logic.
- IV. Research papers on topics related to symbolic logic.

D. Appropriate Outside Assignments:

Outside assignments may include, but are not limited to, the following:

- I. Reading and writing assignments as specified in the course syllabus.
- II. Participation in "study group" activities relating to the issues/topics studied in this course.
- III. Library, electronic or other archival research.
- IV. Analytical semester projects.
- V. Reading and/or reviewing of articles in professional journals and/or current periodicals.
- VI. Field trips to lectures/presentations on topics related to the issues/topics studied in this course.

E. Appropriate Assignments that Demonstrate Critical Thinking:

Critical thinking assignments are required and may include, but are not limited to, the following:

- I. Analyze, synthesize, interpret and formulate arguments.
- II. Compare, contrast, and explain basic concepts, principles and theories commonly associated with symbolic logic.
- III. Describe and critically evaluate basic beliefs prevalent in contemporary philosophy and philosophical activity relating to symbolic logic and its applications

2. METHODS OF EVALUATION:

A student's grade will be based on multiple measures of performance unless the course requires no grade. Multiple measures may include, but are not limited to, the following:

- I. In class essays and/or objective exams
- II. In class presentations
- III. Problem sets and proofs
- IV. Research papers
- V. Take-home essay assignments
- VI. Class participation.

3. METHODS OF INSTRUCTION:

Methods of instruction may include, but are not limited to, the following:

- * Lecture
- * Computer Assisted Instruction
- * Lecture Discussion
- * Discussion Seminar
- * Audio-Visual
- * Collaborative Learning

4. REQUIRED TEXTS AND SUPPLIES:

Textbooks may include, but are not limited to:

TEXTBOOKS:

1. Bergmann, Merrie, James Moor and Jack Nelson. The Logic Book, 6 ed. McGraw-Hill, New York, NY., 2013, ISBN: 978-007803841
2. Copi, Irving M. Symbolic Logic, 5 ed. Prentice-Hall, Upper Saddle River, NJ., 1979, ISBN: 9780023249808
3. Copi, Irving M., and Carl Cohen. Introduction to Logic, 14 ed. Pearson, 2010, ISBN: 978-020582037
4. Gustason, William and Dolph E. Ulrich. Elementary Symbolic Logic, 2 ed. Waveland Press, Prospect Heights, IL., 2001, ISBN: 9780881334128
5. Hurley, Patrick J.. Concise Introduction to Logic, 11 ed. Cengage, Belmont, CA., 2011, ISBN: 978-084003417

MANUALS:

PERIODICALS:

SOFTWARE:

SUPPLIES:

ORIGINATOR: Dwight Furrow

CO-CONTRIBUTOR(S)

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