

SOUTHEAST COMMUNITY COLLEGE
ARTS AND SCIENCES DIVISION
Humanities
Revision Date: 07-01-19

I. CATALOG DESCRIPTION

Course number: PHIL1100
Course description: Introduction to Logic and Critical Thinking
Prerequisite(s): Eligible for English 1010
Catalog description: An introduction to the study of arguments and reasoning, with an emphasis on principles of formal reasoning and their application. PHIL 1100 will cover two systems of formal logic in depth: categorical logic and propositional logic. Students will master a range of formal methods within these two systems. This class may be used as math credit for the Academic Transfer program.
Credit hours: 3.0
Lab hours: 0
Class hours: 45

II. COURSE OBJECTIVES: *Course will:*

- A. Introduce central concepts of logic, such as deductive arguments, inductive arguments, deductive validity, and soundness.
- B. Explore formal methods for determining the validity of immediate inferences within categorical logic, including the use of Venn diagrams, the square of opposition, conversion, obversion, and contraposition.
- C. Use Venn diagrams to determine the validity or invalidity of categorical syllogisms.
- D. Explore the use of truth tables within propositional logic to determine the logical characteristics of statements and sets of statements, such as whether a statement is self-contradictory or a set of statements is consistent.
- E. Explore the use of truth tables within propositional logic to determine the validity or invalidity of arguments.
- F. Develop a complete system of natural deduction within propositional logic, and enable students to gain proficiency with this system.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Apply central concepts of logic, such as deductive arguments, inductive arguments, deductive validity, and soundness.
 - 2. Correctly use a range of formal methods to determine the validity of immediate inferences within categorical logic.
 - 3. Proficiently use Venn diagrams to determine the validity or invalidity of categorical syllogisms.
 - 4. Correctly use truth tables to determine the logical characteristics of statements and sets of statements, such as whether a statement is tautologous or a set of statements is consistent.
 - 5. Make correct use of truth tables to determine the validity or invalidity of arguments within propositional logic.
 - 6. Accurately apply the inference rules of a complete system of natural deduction within propositional logic to prove the validity of arguments.
- B. General Education Learning Outcomes
 - 1. GELO #3: Critical Thinking & Problem Solving
Outcome: Evaluate the validity of arguments, alternatives, data, outcomes, and/or impacts of actions.

- IV. CONTENT/TOPICAL OUTLINE** (*course outline may provide more detailed information*):
- A. Central logical concepts
 - B. Categorical logic
 - C. Propositional logic: truth tables
 - D. Propositional logic: natural deduction
- V. INSTRUCTIONAL MATERIALS**
- A. Required text(s)
 - 1. Hurley, Patrick, Lori Watson. *A Concise Introduction to Logic*, 13th edition, Wadsworth Publishing, 2018. ISBN-13: 978-1-305-95976-7.
- VI. METHODS OF PRESENTATION/INSTRUCTION**
- A. Methods of presentation typically include a combination of the following:
 - 1. Lectures
 - 2. Small and large discussion groups
 - 3. Individual and/or collaborative projects
 - 4. Logic games
 - 5. Computer-assisted instruction
- VII. METHODS OF EVALUATION**
- A. Course grade will be based on at least two major exams verifying that all student learning outcomes detailed above have been achieved, as well one or more of the following, as determined by the instructor: quizzes, homework, class and group participation, daily work. The instructor will distribute and discuss evaluation and grading policies with students at the beginning of each term.
 - B. SCC GRADING SCALE:

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		
- VIII. SPECIFIC COURSE REQUIREMENTS**
- A. In order to receive a passing grade, students must complete all work assigned by the instructor, and attend class within instructor guidelines.
 - B. Content, assessment and schedule determined by instructor.