

## NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY

### PHI 112 - LOGIC II (3 CR.)

#### COURSE DESCRIPTION

Evaluates deductive arguments utilizing methods of symbolic logic. Lecture 3 hours per week.

#### GENERAL COURSE PURPOSE

To introduce the student to contemporary symbolic logic. Several methods of testing arguments for validity using symbolic logic will be stressed.

#### ENTRY LEVEL REQUIREMENTS

None

#### COURSE OBJECTIVES

At the completion of this course, the student will have an appreciation for the use of symbols in expediting the process of determining the validity or invalidity of arguments. Specifically, the student should be able to:

- A. Define such terms as "truth-function," "simple statement," "compound statement," "conjunction," "negation," "disjunction," "material implication," "material equivalence," etc.
- B. Be able to use the symbols for basic truth functions I preparing truth tables to: (a) determine the truth or falsity of compound statements; (b) determine the validity or invalidity of arguments in symbolic logic, (c) determine statement-forms.
- C. Be able to use the basic Rules of Inference to prove the validity of arguments using the Method of Deduction.
- D. Be familiar with the basic techniques of Quantification Theory in testing arguments which cannot be dealt with using syllogistic or ordinary symbolic logic.
- E. Be aware of the difference between inductive and deductive logical techniques.

#### MAJOR ELEMENTS OF CONTENT

- A. The nature of symbolic logic; the distinction between simple and compound truth-functional statements; the truth-tables which define conjunction, negation, disjunction, material implication, and material equivalence.
- B. Use of truth tables in determining the truth or falsity of compound truth-functional statements.
- C. Use of truth tables in determining the validity or invalidity of arguments.
- D. The distinctions among tautologies, self-contradictions, and contingent statements.
- E. The distinctions between statements and statement-forms, and between arguments and argument-forms.
- F. The Method of Deduction; the Rules of Inference including the Replacement Rules.
- G. Use of the Method of Deduction to determine the validity of arguments by means of a formal proof.
- H. Short Proofs of Invalidity.
- I. Quantification Theory: quantifiers, quantification rules, and their application.

*Revised 10/95*