

## **NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY PHI 111 – LOGIC (3 CR.)**

### **Course Description**

Introduces inductive and deductive reasoning, with an emphasis on common errors and fallacies. The assignments in the course require college-level reading fluency and coherent communication through written reports. **This is a Passport and UCGS transfer course.** Lecture 3 hours. Total 3 hours per week.

### **General Course Purpose**

PHI 111 identifies and assesses inductive and deductive arguments in formal and informal language and to identify common fallacies. It fulfills a general education humanities requirement and meets some major requirements.

### **Course Prerequisites/Corequisites**

None

### **Course Objectives**

#### **Critical Thinking**

- Construct, identify, analyze, and assess deductive and inductive arguments.
- Apply standards of rational discourse to identify good reasoning.
- Identify unexamined (or under-examined) assumptions in one's thinking.
- Identify and avoid common fallacies.
- Identify reliable information that is relevant and appropriate for addressing complex issues.

#### **Communication**

- Through written, visual, and/or oral communication construct and evaluate arguments, justify reasoning, and identify and respond to objections.

#### **Civic Engagement**

- Engage in discussion rationally, and understand the value of debate in sustaining a civil society and democracy and for the pursuit of truth through inclusive participation.

### **Major Topics to be Included**

#### **Introduction to Logic**

- Identify and distinguish between types of sentences, inferential and non-inferential passages, and deductive and inductive arguments.
- Recognize and construct counterexamples and counterarguments.
- Define and identify necessary and sufficient conditions.

#### **Induction**

- Identify and assess analogical reasoning; construct analogous arguments.
- Identify and assess causal reasoning or scientific reasoning.

#### **Fallacies**

- Define and identify common informal fallacies.
- Define and identify common formal fallacies, in informal and/or formal language.

#### **Propositional Logic and Natural Deduction**

- Translate statements from informal language to well-formed formulae and vice versa.

- Identify and apply symbols and truth tables for conjunction, negation, disjunction, conditionals and biconditionals.
- Evaluate propositional statements, sets of statements, and arguments using truth tables directly and indirectly and/or using truth trees.
- Define, identify and construct proper substitution instances of statement forms and rules of inference and rules of replacement.
- Construct proofs using rules of inference and rules of replacement to demonstrate the validity of arguments and the truth of tautologies, with each step correctly justified.
- Construct proofs using Indirect Proofs and/or Conditional Proofs to demonstrate the validity of arguments and the truth of theorems, with subproof(s) properly structured and each step correctly justified.

### **Categorical Reasoning**

- Translate categorical propositions and syllogisms from informal language to standard form.
- Identify and apply the logical relationships among categorical propositions to deduce the validity or invalidity of immediate inferences, using both the traditional and modern interpretations.
- Construct and identify Venn diagrams for four main types of categorical propositions, using both the modern and traditional interpretations.
- Identify whether a categorical syllogism is valid or invalid, using the rule-based method, by constructing Venn diagrams and/or by applying the medieval mnemonic method, using both the modern and traditional interpretations.