RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

PHIL 103 INTRODUCTION TO FORMAL LOGIC

I. Basic Course Information

A. Course Number and Title: PHIL 103 Introduction To Formal Logic

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Spring Year: 2019

D. Effective Term: Spring 2020

E. Sponsoring Department: Humanities, Social Science, Social Work, & Education

F. Semester Credit Hours: 3

G. Weekly Contact Hours: 3
   Lecture: 3
   Laboratory: 0
   Out of class student work per week: 6

H. Prerequisites/Corequisites: none

I. Laboratory Fees: N/A

J. Name and Telephone Number or E-Mail Address of Department Chair and Divisional Dean at time of approval:
   Department Chair: Brandyn Heppard, Brandy.Heppard@raritanval.edu
   Divisional Dean: Patrice Marks, Patrice.Marks@raritanval.edu

II. Catalog Description

This course examines the structure of deductive reasoning, and the rules of valid inference that underlie our thinking in a wide range of applications. It provides an introduction to two principal systems: sentential/propositional logic and predicate logic. Emphasis will be given to both proof construction and translation from natural language to symbolic form. Attention may be given to “meta-logic” and the key properties of formal systems, namely consistency and completeness.
III. Statement of Course Need

A. This course examines how information is captured in sentences and how it is possible for one statement to be a consequence of another. In order to understand connection and process in any area, but particularly philosophy, science and mathematics, the course provides a working understanding of the structure of deductive reasoning.

B. No lab component

C. Transferability of course:
   1. This course generally transfers as a Philosophy and Religion general education course.
   2. This course generally transfers as a Philosophy program requirement.
   3. This course generally transfers as a Philosophy program elective.

IV. Place of Course in College Curriculum

A. Free Elective
B. This course serves as a General Education course in Humanities/Philosophy and Religion.
C. This course meets a program requirement for Game Development, AAS and for Information Systems & Technology, AAS.
D. Course transferability: For New Jersey schools, go to the NJ transfer website, www.njtransfer.org. For all other colleges and universities, go to their individual websites.

V. Outline of Course Content

A. Nature of reasoning; deduction and induction; validity and soundness
B. Propositional logic; symbolization techniques and primary system rules
C. Predicate logic (treated in the same manner)
D. Truth tables and their relationship to formal proof
E. Properties of formal systems (e.g., consistency and completeness)

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

At the completion of the course, students will be able to:

1. Explain the underlying deductive reasoning used in a wide range of human activity (GE-NJ 3, 5, 6)*
2. Apply skills involved in formal proof construction (GE-NJ 6)
3. Explain the importance of the rigor of formal systems (GE-NJ 6)*
4. Apply approaches and criteria commonly used in the discipline of formal logic (GE-NJ 6)*
   [*: Embedded critical thinking]
B. **Course Learning Outcomes:**

At the completion of the course, students will be able to:

1. Construct formal proofs in sentential/propositional and predicate logic
2. Use relational predication with multiple quantifiers
3. Apply the following concepts: deduction, induction, validity, soundness, consistency, equivalence, tautology, contradiction and contingency

C. **Assessment Instruments**

1. Homework
2. Quizzes
3. Tests
4. Exam

VII. Grade Determinants

A. Homework
B. Quizzes
C. Tests
D. Exam

VIII. Texts and Materials

B. web sources

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources

1. Whiteboard
2. Document camera

X. Honors option: N/A