PHIL-1020: INTRODUCTION TO LOGIC

Cuyahoga Community College

Viewing: PHIL-1020 : Introduction to Logic
Board of Trustees:
2012-05-24

Academic Term:
2012-08-27

Subject Code
PHIL - Philosophy

Course Number:
1020

Title:
Introduction to Logic

Catalog Description:
Introduction to evaluation of arguments. Concentration on basic principles of formal logic and application to evaluation of arguments. Explores notions of implication and proof and use of modern techniques of analysis including logical symbolism.

Credit Hour(s):
3

Lecture Hour(s):
3

Lab Hour(s):
0

Other Hour(s):
0

Requisites
Prerequisite and Corequisite
ENG-0990 Language Fundamentals II, or appropriate score on English Placement Test.

I. ACADEMIC CREDIT

Academic Credit According to the Ohio Department of Higher Education, one (1) semester hour of college credit will be awarded for each lecture hour. Students will be expected to work on out-of-class assignments on a regular basis which, over the length of the course, would normally average two hours of out-of-class study for each hour of formal class activity. For laboratory hours, one (1) credit shall be awarded for a minimum of three laboratory hours in a standard week for which little or no out-of-class study is required since three hours will be in the lab (i.e. Laboratory 03 hours). Whereas, one (1) credit shall be awarded for a minimum of two laboratory hours in a standard week, if supplemented by out-of-class assignments which would normally average one hour of out-of-class study preparing for or following up the laboratory experience (i.e. Laboratory 02 hours). Credit is also awarded for other hours such as directed practice, practicum, cooperative work experience, and field experience. The number of hours required to receive credit is listed under Other Hours on the syllabus. The number of credit hours for lecture, lab and other hours are listed at the beginning of the syllabus. Make sure you can prioritize your time accordingly. Proper planning, prioritization and dedication will enhance your success in this course.

The standard expectation for an online course is that you will spend 3 hours per week for each credit hour.

II. ACCESSIBILITY STATEMENT

If you need any special course adaptations or accommodations because of a documented disability, please notify your instructor within a reasonable length of time, preferably the first week of the term with formal notice of that need (i.e. an official letter from the Student Accessibility Services (SAS) office). Accommodations will not be made retroactively.
For specific information pertaining to ADA accommodation, please contact your campus SAS office or visit online at http://www.tri-c.edu/accessprograms. Blackboard accessibility information is available at http://access.blackboard.com.

III. ATTENDANCE TRACKING

Regular class attendance is expected. Tri-C is required by law to verify the enrollment of students who participate in federal Title IV student aid programs and/or who receive educational benefits through other funding sources. Eligibility for federal student financial aid is based in part on enrollment status.

Students who do not attend classes for the entire term are required to withdraw from the course(s). Additionally, students who withdraw from a course or stop attending class without officially withdrawing may be required to return all or a portion of their financial aid based on the date of last attendance. Students who do not attend the full session are responsible for withdrawing from the course(s).

Tri-C is responsible for identifying students who have not attended a course before financial aid funds can be applied to students’ accounts.

Therefore, attendance is recorded in the following ways:

- For in-person and blended-learning courses, students are required to attend the course by the 15th day of the semester (or equivalent for terms shorter than five weeks) to be considered attending. Students who have not met all attendance requirements for in-person and blended courses, as described herein, within the first two weeks or equivalent, will be considered not attending.
- For online courses, students are required to login at least two times per week and submit one assignment per week for the first two weeks of the semester, or equivalent to the 15th day of the term. Students who have not met all attendance requirements for online courses, as described herein, within the first two weeks or equivalent, will be considered not attending.

At the conclusion of the first two weeks of a semester or equivalent, instructors report any registered students who have “Never Attended” a course. Those students will be administratively withdrawn from that course. However, after the time period in the previous paragraphs, if a student stops attending a class or wants or needs to withdraw, for any reason, it is the student’s responsibility to take action to withdraw from the course. Students must complete and submit the appropriate Tri-C form by the established withdrawal deadline.

Tri-C is required to ensure that students receive financial aid only for courses that they attend and complete. Students reported for not attending at least one of their registered courses will have all financial aid funds held until confirmation of attendance in registered courses has been verified. Students who fail to complete at least one course may be required to repay all or a portion of their federal financial aid funds and may be ineligible to receive future federal financial aid awards. Students who withdraw from classes prior to completing more than 60 percent of their enrolled class time may be subject to the required federal refund policy.

If illness or emergency should necessitate a brief absence from class, students should confer with instructors upon their return. Students having problems with coursework due to a prolonged absence should confer with the instructor or a counselor.

IV. LEARNING OUTCOMES ASSESSMENT

Occasionally, in addition to submitting assignments to their instructors for evaluation and a grade, students will also be asked to submit completed assignments, called ‘artifacts,’ for assessment of course and program outcomes and the College’s Essential Learning Outcomes (ELOs). The artifacts will be submitted in Blackboard or a similar technology. The level of mastery of the outcome demonstrated by the artifact DOES NOT affect the student’s grade or academic record in any way. However, some instructors require that students submit their artifact before receiving their final grade. Some artifacts will be randomly selected for assessment, which will help determine improvements and support needed to further student success. If you have any questions, please feel free to speak with your instructor or contact the Learning Outcomes Assessment office.

V. CONCEALED CARRY STATEMENT

College policy prohibits the possession of weapons on college property by students, faculty and staff, unless specifically approved in advance as a job-related requirement (i.e., Tri-C campus police officers) or, in accordance with Ohio law, secured in a parked vehicle in a designated parking area only by an individual in possession of a valid conceal carry permit.

As a Tri-C student, your behavior on campus must comply with the student code of conduct which is available on page 29 within the Tri-C student handbook, available at http://www.tri-c.edu/student-resources/documents/studenthandbook.pdf. You must also comply with the College’s Zero Tolerance for Violence on College Property available at http://www.tri-c.edu/policies-and-procedures/documents/3354-1-20-10-zero-tolerance-for-violence-policy.pdf
Outcomes

Objective(s):
1. Distinguish premises from conclusions in passages containing arguments.
2. Reflect the structure of arguments through diagrams.
3. Distinguish deductive from inductive argument structures.
4. Classify fallacies according relevance, defective induction, presumption and ambiguity.
5. Recognize fallacies as they appear in argumentative passages.
6. Recognize fallacies as they appear in advertising and politics.
7. Manipulate immediate inferences with respect to the traditional square of opposition.
8. Manipulate the immediate inferences of conversion, obversion, and contraposition.
9. Apply issues of existential import as they relate to immediate inferences.
10. Rewrite categorical syllogisms containing standard form categorical propositions to reflect standard form order.
11. Construct Venn diagram proofs of validity for categorical syllogisms containing standard form categorical propositions.
13. Translate non-standard form categorical propositions into standard form categorical propositions.
14. Translate non-standard form categorical syllogisms into standard form categorical syllogisms.
15. Show a facility for translating statements in natural language into their basic forms, using a given symbol system (logical syntax).
16. Give evidence of understanding how the following notions are related to each other: truth/falsity, implication, and equivalence.
21. Successfully construct formal deductions in monadic predicate logic.
22. Distinguish premises from conclusions in passages containing arguments.
23. Reflect the structure of arguments through diagrams.
24. Distinguish deductive from inductive argument structures.
25. Classify fallacies according to relevance, defective induction, presumption and ambiguity.
26. Recognize fallacies as they appear in argumentative passages.
27. Recognize fallacies as they appear in advertising and politics.
28. Manipulate immediate inferences with respect to the traditional square of opposition.
29. Manipulate the immediate inferences of conversion, obversion, and contraposition.
30. Apply issues of existential import as they relate to immediate inferences.
31. Rewrite categorical syllogisms containing standard form categorical propositions to reflect standard form order.
32. Construct Venn diagram proofs of validity for categorical syllogisms containing standard form categorical propositions.
33. Construct rule-method proofs of validity for categorical syllogisms containing standard form categorical propositions.
34. Translate non-standard form categorical propositions into standard form categorical propositions.
35. Translate non-standard form categorical syllogisms into standard form categorical syllogisms.
36. Show a facility for translating statements in natural language into their basic forms, using a given symbol system (logical syntax).
37. Give evidence of understanding how the following notions are related to each other: truth/falsity, implication, and equivalence.
38. Construct truth table proofs of validity for deductive arguments translated into logical symbolism.
40. Construct formal proofs of validity for deductive arguments translated into logical symbolism.
41. Demonstrate mastery of quantifier negation rules.
42. Successfully construct formal deductions in monadic predicate logic.

Methods of Evaluation:
1. Unit exams covering 20-50% of the term
2. Section quizzes
3. Text exercise assignments
4. Class participation

Course Content Outline:
1. Why study logic?
   a. Improve critical thinking skills
   b. Improve analytical reasoning skills
2. What is logic?
   a. Distinguishing between correct and incorrect reasoning
   b. Definition of "argument":
      i. Premises
      ii. Conclusions
      iii. Proof
3. Identifying arguments: indicator words and phrases
   a. Classifying arguments as deductive
   b. Classifying arguments as inductive
4. The Traditional Square of Opposition
   a. Construct the Square of Opposition
   b. Construct logical relations around the Traditional Square of Opposition
5. Construct the three further immediate inferences of conversion, obversion, and contraposition
   a. Apply the three further immediate inferences to standard form categorical propositions.
   b. Show validity and invalidity of immediate inferences.
6. Understand the implications of existential import
   a. Recognize instances of the existential fallacies.
   b. Show the Boolean response to the problem of existential import.
7. Construct Venn diagram proofs of validity for standard form categorical syllogisms.
   a. Construct diagrams for syllogisms containing universal propositions exclusively.
   b. Construct diagrams for syllogisms containing singular propositions exclusively.
   c. Construct diagrams for syllogisms containing both universal and particular propositions.
8. Construct rule-method proofs of validity for standard form categorical syllogisms
   a. Master the six rules
   b. Develop a hierarchy for applying the rules in a proof
9. Perform reduction to standard form analyses on non-standard form categorical syllogisms
   a. Reduce syllogisms to three terms using the three further immediate inferences of conversion, obversion, and contraposition
   b. Recognize terms that are equivocated to reduce the terms of the syllogism to three
10. Translate non-standard form categorical propositions into standard form categorical propositions
    a. Demonstrate why singular propositions can be treated as universals
    b. Apply techniques aimed at creating proper subject and predicate terms
12. Analyze enthymatic argument structures
13. Syntax (structure of compound statements)
    a. Statements and their forms
       i. Simple
       ii. Conjunction
       iii. Disjunction
       iv. Hypothetical
       v. Biconditional
    b. The parts of compound statements/statement forms
       i. Conjuncts
       ii. Isjuncts
       iii. Antecedents
       iv. Consequents
    c. Analysis of grouping words and punctuation device
       i. "Both"
       ii. "Either"
       iii. Commas
    d. Distinguishing "if" from "only if" and both from "if and only if"
    e. Unpacking the syntax of "packed" statements; e.g., "Smith and James hit and ran."
14. Semantics (truth and meaning)
    a. Two values: true/false
    b. Principles of identity, non-contradiction, and excluded middle
    c. Five semantic principles
       i. Negation
       ii. Conjunction
       iii. Disjunction
iv. Hypothetical  
v. Biconditional  
d. Constructing value tables  
e. Semantic types of statement form  
i. Tautology  
ii. Contradiction  
iii. Contingent form  
f. Logically true, logically false, and contingently true and false statements  
g. Semantic relations between statement forms  
i. Logical equivalence  
ii. Implication between equivalence and implication  

15. Proofs  
a. Rewriting arguments in standard order; translating standard order proofs into proof form  
b. The notion of the proof’s validity, as derived from the notion of implication; the use of value tables to show validity/invalidity  
c. Distinguishing soundness from mere validity; inductive from deductive inference  
d. Formal proofs: rules of inference and rules of replacement  
e. Indirect proof  

16. Predicate logic  
a. Definitions of basic concepts  
b. Quantifiers and truth-functional operators  
c. Quantifying categorical statements  
d. Quantifier negation  
e. Domain of discourse and truth-functional expansion  
f. Formal deductions in monadic predicate logic  

Resources  


Resources Other  
1. Internet Encyclopedia of Philosophy: http://www.iep.utm.edu/  
5. Yale Univeristy Library, Philosophy: http://www.library.yale.edu/humanities/philosophy/associations.html

Instructional Services

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