

Syllabus

Code: PHIL 226

Title: Logic

Institute: Business and Social Sciences

Department: Philosophy

Course Description: Students will learn to develop methods of correct reasoning and ways of avoiding formal and informal fallacies. Emphasis will be placed on the analysis of words, statements and arguments using traditional logic.

Prerequisites: MATH 012, MATH 015 or passing score in computation on Accuplace Test.

Corequisites: N/A

Prerequisites or Corequisites:

Credits: 3

Lecture Hours: 3

Lab/Studio Hours:

Required Textbook/Materials:

A Concise Introduction to Logic, Patrick Hurley (Mason, OH: Cengage Publishing, 2015)

Additional Time Requirements:

For information on Brookdale's policy on credit hour requirements and outside class student work refer to [Academic Credit Hour Policy](#).

See course/instructor section addendum.

Course Learning Outcomes:

Upon successful completion of this course, as demonstrated through examinations, the student will be able to:

- recognize formal and informal fallacies in language samples
- differentiate inductive and deductive arguments
- identify and produce good inductive and deductive arguments using the principles of logic
- evaluate arguments from public discourse using the principles and methods of inductive and deductive logic

Clear thinking is important for every civilization, but perhaps it is most important for our own, where each of us is continually being called upon to exercise his/her freedom to make choices. The information for these choices is readily available for those who seek it. It comes from books, magazines, newspapers, radio and television, the internet, conversations, meetings, debates, and many other sources, which compete for our attention in order to influence our attitudes and decisions.

But how much of what we read and hear ought we believe? And if we don't know what to believe, how can our free choices be intelligent choices? Must we live in constant skepticism? Or are there ways to sort out correct thinking from deceptive thinking? Logic is the science of correct thinking. It studies the methods for making accurate inferences and for forming sound arguments, and it helps us identify misleading and fallacious arguments. In short, it enables us to deal more critically with the world around us.

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Just as Olympic champions must exercise their bodies, clear thinkers must exercise their powers of thinking. This is often difficult work, especially when there are no medals for the winners. But there are personal rewards. These will be evident to the serious student by the end of the course. And now, let us begin to pursue them.

Grading Standard:

There will be four unit tests. In the event of an initial failure on any test, you may retake the test one time, with a maximum acceptable score of 70%.

The grading standard for this course will be as follows:

100% to 93% = A

92% to 90 = A-

89% to 87% = B+

86% to 83% = B

82% to 80 = B-

79% to 77% = C+

76% to 70% = C

69% to 60% = D

below 60% = F

Course Content:

Unit I (Chapters 1, 3)

By the end of Chapter 1, you should be able to

1. Define argument, truth value, premise, conclusion, reasoning, inference, proposition;
2. Distinguish between premises and conclusion
3. Recognize arguments and distinguish them from passages that lack inferential claims, from conditional statements, and from explanations;
4. Distinguish between inductive and deductive reasoning and list the major types of each;
5. Define validity, truth, soundness, strength, cogency;
6. Identify arguments that are valid, sound, strong and/or cogent;
7. Describe a substitution instance;
8. Use the counterexample method to demonstrate invalidity;
9. Diagram extended arguments;
10. Answer correctly the exercises at the end of each section of Chapter 1.

By the end of Chapter 3, you should be able to

1. Distinguish between formal and informal fallacies;
2. Describe and give examples of the eight kinds of fallacies of relevance;
3. Describe and give examples of the six kinds of fallacies of weak induction;
4. Describe and give examples of the eight kinds of fallacies of presumption, ambiguity and grammatical analogy;

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5. Detect fallacies in ordinary language;
6. Answer correctly the exercises at the end of each section of Chapter 3.

Unit II (Chapter 4)

By the end of Chapter 4, you should be able to

1. Describe the components of a categorical proposition;
2. Give the quantity, quality and letter name for categorical propositions;
3. Determine the distribution of each term in a categorical proposition;
4. Draw and interpret a Venn diagram;
5. Determine the validity of selected arguments using the modern square of opposition;
6. Describe the processes of conversion, obversion and contraposition;
7. Illustrate conversion, obversion and contraposition with Venn diagrams;
8. Determine the validity of selected arguments using conversion, obversion and contraposition;
9. Determine the validity of selected arguments using the modern square of opposition;
10. Decide when to use the modern square and when to use the traditional square;
11. Translate ordinary language into categorical form;
12. Answer correctly the exercises at the end of each section of Chapter 4.

Unit III (Chapter 5)

By the end of Chapter 5, you will be able to

1. Determine the major premise, minor premise, conclusion, figure and mood of categorical syllogisms;
2. Use a chart to determine which categorical syllogisms are unconditionally valid, conditionally valid, or invalid;
3. Use Venn diagrams to determine the validity of categorical syllogisms;
4. List and use the five rules to determine the validity of categorical syllogisms;
5. List and give examples of the corresponding five formal fallacies;
6. Reduce the number of terms in a syllogism to make it conform to standard form;
7. Translate ordinary language arguments into standard form;
8. Express the missing proposition in an enthymeme;
9. Determine the validity of an enthymeme;
10. Express the linkage in a sorites;
11. Determine the validity of a sorites;
12. Recognize the form and determine the validity of pure and mixed conditional syllogisms (not in text);
13. 13. Recognize the form and determine the validity of exclusive and inclusive disjunctive syllogisms (not in text);
14. Answer correctly the exercises at the end of each section of Chapter 5.

Unit IV (Chapter 6)

By the end of Chapter 6 you should be able to

1. State the logical function, and translation of, the following five logical operators: tilde, dot, wedge, horseshoe, and triple bar.

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2. Identify the following kinds of statements: negations, conjunctions, disjunctions, conditionals, and biconditionals.
3. Translate statements into symbolic form.
4. Recognize well-formed formulas (WFFs).
5. Identify the main operator in a compound statement.
6. Give the definitions of each of the five logical operators via their truth tables.
7. Use the definitions of the five logical operators to compute the truth values of more complicated propositions.
8. Translate into symbolic form and determine truth values of ordinary language statements.
9. Construct truth tables of compound propositions.
10. Use truth tables to determine whether statements are tautologies, self-contradictory or contingent.
11. Use truth tables to determine whether pairs of statements are logically equivalent, contradictory, consistent or inconsistent.
12. Translate arguments into symbolic form, and, using truth tables, determine validity.
13. Use indirect truth tables to determine validity of arguments.
14. Recognize the following valid argument forms: disjunctive syllogism, pure hypothetical syllogism, modus ponens, modus tollens, constructive dilemma, and destructive dilemma.
15. Recognize the following invalid argument forms: affirming the consequent and denying the antecedent.
16. Answer correctly the exercises at the end of each section of Chapter 6.

Department Policies:

Department Policies are in alignment with College Policies

College Policies:

As an academic institution, Brookdale facilitates the free exchange of ideas, upholds the virtues of civil discourse, and honors diverse perspectives informed by credible sources. Our College values all students and strives for inclusion and safety regardless of a student's disability, age, sex, gender identity, sexual orientation, race, ethnicity, country of origin, immigration status, religious affiliation, political orientation, socioeconomic standing, and veteran status. For additional information, support services, and engagement opportunities, please visit www.brookdalecc.edu/support.

For information regarding:

- ◆ Brookdale's Academic Integrity Code
- ◆ Student Conduct Code
- ◆ Student Grade Appeal Process

Please refer to the [BCC STUDENT HANDBOOK AND BCC CATALOG](#).

NOTIFICATION FOR STUDENTS WITH DISABILITIES:

Brookdale Community College offers reasonable accommodations and/or services to persons with disabilities. Students with disabilities who wish to self-identify must contact the Disabilities Services Office at 732-224-2730 (voice) or 732-842-4211 (TTY) to provide appropriate documentation of the disability, and request specific accommodations or services. If a student qualifies, reasonable accommodations and/or services, which are appropriate for the college level and are recommended in the documentation, can be approved.

ADDITIONAL SUPPORT/LABS:

See the Tutoring Center for information <https://www.brookdalecc.edu/academic-tutoring/tutoring-center/>.

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- Mental Health Crisis Support: From a campus phone, dial 5555 or 732-224-2329 from an external line; off-hours calls will be forwarded to BCC police (2222 from a campus phone)
- Psychological Counseling Services: 732-224-2986 (to schedule an appointment during regular hours)

The syllabus is intended to give student guidance in what may be covered during the semester and will be followed as closely as possible. However, the faculty member reserves the right to modify, supplement, and make changes as the need arises.