

BUTTE COLLEGE

COURSE OUTLINE

I. CATALOG DESCRIPTION

MATH 7 - Formal Logic and Writing

3 Unit(s)

Prerequisite(s): ENGL 2

Recommended Prep: Reading Level V

Transfer Status: CSU/UC

51 hours Lecture

This course develops an understanding of the relationship of language to logic, which should lead to the ability to analyze, criticize, and advocate ideas and to reason inductively and deductively. Skills will be developed through writing as well as the formal symbolic representation of arguments.

II. OBJECTIVES

Upon successful completion of this course, the student will be able to:

- A. Recognize and analyze both inductive and deductive arguments.
- B. Translate standard English arguments into symbolic form in order to evaluate their soundness and/or cogency.
- C. Recognize and analyze basic fallacious arguments: ad hominem and denying the antecedent.
- D. Set up and use truth tables in order to assess validity of an argument.
- E. Use conditional and indirect proofs when analyzing an argument.

III. COURSE CONTENT

A. Unit Titles/Suggested Time Schedule

		Lecture
<u>Topics</u>		<u>Hours</u>
1. Induction and Deduction		6.00
2. Truth, Validity and Soundness		4.00
3. Sentential Logic		8.00
4. Truth Tables		4.00
5. Proofs		11.00
6. Fallacies		6.00
7. Predicate Logic		12.00
Total Hours		51.00

IV. METHODS OF INSTRUCTION

- A. Lecture
- B. Collaborative Group Work
- C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- D. Discussion
- E. Board Work

V. METHODS OF EVALUATION

- A. Exams/Tests
- B. Quizzes
- C. Written essays (6000-8000 word writing requirement)

- D. Daily Homework Assignments, where the student will demonstrate problem-solving skills
- E. Class Assignments and Class Response

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments

1. Read the "Note on the History of Logic" in your book. Be prepared to take a short quiz on the material in class.
2. Read at least six biographical vignettes of prominent logicians that are in your book. Try to select at least two from each period: Ancient Greek, Middle Ages, and Modern.

B. Writing Assignments

1. Pick an eminent logician from the many mentioned in the book and find out more about him/her. Write a two-page paper on why this logician appeals to you.
2. Read the essay "Corn-pone" by Mark Twain and write a 3 to 4 page paper on whether this essay is still relevant in the 21st century.

C. Out-of-Class Assignments

1. Collect an article that is in the news and try to symbolize the contents. Letters to the editor are often good for this assignment.
2. Interview a family member and find out if they ever made an important decision based solely on rational logic.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

- A. Hurley, P.J. A Concise Introduction to Logic. 11th Edition. Cengage Learning, 2012.

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