

INTRODUCTION TO LOGIC

Course Syllabus

North Central University

Math 126 (3 credits)

Fall Semester, 2005

Tuesday-Thursday Block A (8:00-9:15)

Dr. Thomas A. Burkman

Office: CLC

Phone: 343-4748

Office Hours: As Posted

Course Description: A study of the most basic forms of reasoning and their linguistic; as well as, symbolic expressions. This course provides an introduction to the traditional theory of syllogism; contemporary symbolic logic; meaning and definitions; and, the relationship of fallacies and argumentation. The course is taught from a sequential, algebraic operations approach and meant for students with a desire to expand their critical thinking skills.

Objectives: The student will

1. Demonstrate understanding of the basic concepts of logic
2. Demonstrate understanding of the use of symbols and syllogistic language for constructing arguments and testing validity
3. Demonstrate understanding of deductive and inductive reasoning.
4. Demonstrate understanding of the different types of logical problems, including fallacies and syllogisms, through the use of logical solutions such as Venn diagrams, truth functions and truth tables.
5. Demonstrate understanding of the role of natural deduction in propositional logic, predicate logic and proofs.

Textbook:

Harry J. Gensler, *Introduction to Logic*. (2002). Routledge, New York, NY, 10001.

Note: text includes logic software entitled: *LogiCola* with practice problem sets and exercises corresponding to text chapters and assignments.

Note: An integral part of the class is using the text in discussion and practice. You MUST bring your text to class each time.

Assessment Measures:

- Instructor designed written midterm and final exam.
 - Exams will contain logical concepts and theories, symbols, and syllogistic language
 - Exams will contain common logical problem sets similar to *LogiCola* assignments
- Periodic required assignment sets from *LogiCola*
- Periodic surprise assignment quizzes

Grade Scale:

There will be a total of 1000 points possible for the course. This is broken down as follows: 200 total for homework assignments; 200 total for quizzes; 200 for midterm exam; and, 400 points for final exam. The final exam points will be broken down as follows: 150 points will correspond to material from the midterm exam and 250 points will cover material covered in the approximate last one half of the course. The final exam will be given in accordance with the University's final exam schedule. Students may not take the final exam at a different time.

Letter Grades:

| | | |
|-----------------|---------|---|
| 900-1000 points | 90-100% | A |
| 800-899 points | 80-89% | B |
| 700-799 points | 70-79% | C |
| 600-699 points | 60-69% | D |
| 0-599 points | 0-59% | F |

Letter grades will not be assigned until all points are in.

Policies

Attendance:

The policy as described in the university catalog will be enforced.

Academic Integrity:

Academic dishonesty is a serious breach of conduct at North Central University and violations can result in serious discipline including the possibility of dismissal from the University. Academic dishonesty is defined as intentional plagiarism, cheating, fabrication or attempting to help others to be dishonest which includes, but is not limited to, roster fraud and attendance deception. Note: See full University policy for details.

Late Registrations:

Students who add the course after the first class meeting are held to the same syllabi expectations as students who start the course on the official start date. These expectations include, but not limited to: assignments, and attendance policy. It is the responsibility of the late addition student to make up missed assignments, class note, etc. The professor is not held responsible.”

Documented Disability:

If you have a documented disability and wish to discuss academic accommodations, please contact the instructor as soon as possible.

Professional Standards:

Coffee, tea, water, and soft drinks are normally acceptable in class as long as the consumption is not distracting to others. Please refrain from eating in class. Persons eating in class will be asked to step out. Please turn off all cell phone ringers, as well as, any electronic device set with an alarm or ringer. Appropriate respect is expected from all students toward the professor and toward all classmates. Sleeping in class, working on assignments from other courses, and non-class related talking are considered disrespectful. Guilty persons will be asked to leave.

Tentative Semester Schedule:

Session 1. **Introduction:** Chapter 1. – text; syllabus, LogiCola explanation

Session 2. Chapter 1 – text; terms and definitions

Session 3. **Syllogistic Logic:** Chapter 2 – text; Syllogisms, wffs
LogiCola exercises (AEM & AET: levels 7-9)

Session 4. Chapter 2 – text; Star Test
LogiCola exercises (B – parts H & S: levels 7-9)

Session 5. Chapter 2 – text; English Arguments & Harder
LogiCola exercises (AHM & AHT: levels 7-9)

Session 6. Chapter 2 – text; Deriving Conclusions
LogiCola exercises (B – part D: levels 7-9)

Session 7. Chapter 2 – text; Venn Diagrams
LogiCola exercises (B – part C: levels 7-9)

Session 8. **Basic Propositional Logic:** Chapter 3 – text; Propositional Logic
LogiCola exercises (CEM & CET: levels 7-9)

Session 9. Chapter 3 – text; Truth Tables
LogiCola exercises (DTE & DFE: levels 7-9)

Session 10. Chapter 3 – text; Truth Table Tests
LogiCola exercises (DAE & DAM: levels 7-9)

Session 11. Chapter 3 – text; S-Rules
LogiCola exercises (FSE: levels 7-9)

Session 12. Chapter 3 – text; I-Rules
LogiCola exercises (FIE: levels 7-9)

Session 13. Review

Session 14. **Midterm Exam**

Session 15. **Inductive Reasoning:** Chapter 13 – Introduction and Probability;
LogiCola exercises – P (P,O,C)

Session 16. Chapter 13 – text; Review Probability & Philosophical Questions
LogiCola exercises – P (G,O,V)

Session 17. Chapter 13 – text; Reasoning from Samples
LogiCola exercises - None

Session 18. Chapter 13 – text; Analogical Reasoning
LogiCola exercises – P (I)

Session 19. Chapter 13 – text; Problems with Induction
LogiCola exercises - None

- Session 20. **Meaning and Definitions:** Chapter 14 – text; Logic and Meaning & Uses
LogiCola exercises - None
- Session 21. Chapter 14 – text; Lexical and Stipulative Definitions
LogiCola exercises - Q
- Session 22. Chapter 14 – text; Explaining and Distinctions
LogiCola exercises - None
- Session 23. Chapter 14 – text; Analytical, a priori & a posteriori
LogiCola exercises - None
- Session 24. **Fallacies and Argumentation:** Chapter 15 – text; Arguments & Informal Fallacies
LogiCola exercises - None
- Session 25. Chapter 15 – text; Informal Fallacies continued
LogiCola exercises - R
- Session 26. Chapter 15 – text; Inconsistency & Constructing Arguments
LogiCola exercises - None
- Session 27. Chapter 15 – text; Analyzing
LogiCola exercises - None
- Session 28. Review ??
- Session 29. Final Exam

How to do well in this course:

Attend lectures, and read the corresponding chapters of the text before the lecture. Attend any discussion sections or study groups, *if* formed during the semester. Use the non-assigned practice sets and exercises from the text and the *LogiCola* software to determine for yourself how well you have mastered the material. If you need additional help, be sure to ask. The earlier you get a clear understanding on some of the issues that are giving you trouble, the better it will be for everyone. This will be a very manageable course if you simply keep up with the material, regularly practice by doing the practice sets from the text and software.