

WEBSTER UNIVERSITY

COURSE SYLLABUS

MTHC 5230.01

Instructor: Andrea Rothbart

DISCRETE MATHEMATICS

Term: Spring Semester, 2004

Site: 50

1. COURSE DESCRIPTION:

This course is designed for secondary school mathematics teachers. Topics include: Boolean Algebra and Circuit Design, Finite State Machines, Graph Theory, Trees, Recursion, and Algorithm Design.

2. LEARNING OUTCOMES: (Goals, objectives, course outcomes, etc.)

Students will be introduced to a variety of charming elementary applications of mathematics, many of which are appropriate for use with secondary school students.

3. SCHEDULE (Note: Each class, there will be homework assignments related to the material covered.)

Week 1	Binary Arithmetic; One's Complement; A bit of Magic
Week 2	Finite State Machines
Weeks 3 – 5	Graph Theory, Chromatic Number and Other Applications; Instant Insanity
Week 6	Quiz; Recursion
Week 7	Matrices and Path Problems
Week 8	Algorithm Design; Shortest Distance Algorithm
Weeks 9 – 11	Trees; Applications of Trees including Polish Notation, Huffman Codes and Binary Search Trees
Week 12	Quiz; Cryptography
Weeks 13 – 15	Boolean Algebra; Simplifying Boolean Expressions and Solving Equations; Circuit Design; Applications
Week 16	Quiz

4. RESOURCES:

Text Used: No textbook need be purchased. Materials will be distributed by the instructor.

5. EVALUATION: based upon examinations, homework and class participation.

**This syllabus is subject to change at the discretion of the instructor.
Therefore, regular attendance is required.**