



COURSE NUMBER MTHC 5450	COURSE TITLE Topics in Number Theory	SEMESTER & YEAR Spring 08
Instructor Andrea Rothbart	rothbart@webster.edu (314) 968 6975 Webster Hall Room 248	CREDIT HOURS 3

COURSE DESCRIPTION:

This course covers selected topics in number theory, such as modular systems, quadratic reciprocity, number-theoretic functions, Pythagorean Triples, and perfect numbers. Specific topics to be determined by instructor. Relevant theory will be developed.

For the Spring, 08 section, emphasis will be placed on the algebraic structure of the modular systems, as well as understanding factorization and divisibility properties within the natural number system.

DESIRED LEARNING OUTCOMES:

The student will deepen his understanding of mathematics and increase his ability to think through mathematical problems, particularly in the areas of mathematics examined in this course. The student will also develop his/her ability to express mathematical arguments and to use mathematical language precisely.

RESOURCES: We will be using the textbook: *The Theory of Remainders* by Rothbart.

EVALUATION: The course grade is based upon quiz scores and class participation.

Schedule of Classes (Approximate)

- Class 1: The Black Magic Device
- Classes 2, 3: The Modular Systems
- Classes 4,5: Basic Concepts of Factorization and Divisibility;
- Class 6: Quiz
- Classes 7,8,9: The Algebraic Structure of the Modular Systems
- Class 10: Remainder Tests
- Class 11: Quiz
- Class 12: Linear Diophantine Equations
- Class 13: The orbit problem
- Classes 14, 15: Miscellaneous problems in number theory
- Class 16: Quiz

This syllabus is subject to change at the discretion of the instructor and so regular attendance is required.