

MATH 300 History of Mathematics Course Outline

PREREQUISITES: MA 227 or equivalent

BULLETIN DESCRIPTION: Ideas and techniques that constitute the world of mathematics. Problem-solving methods and techniques applied to such diverse areas as Egyptian, Greek, and Babylonian mathematics: geometry; number theory; calculus; modern mathematics.

COURSE OBJECTIVES:

(1) Students should become familiar with some individuals who made significant contributions to mathematics, starting with Thales of Miletus (624-548 B.C.) and ending with the twentieth century. Students should learn how these mathematicians interacted with each other, and how they were affected by the political, religious, and cultural environment in which they functioned.

(2) Students should learn certain mathematical topics with a rich historical context, namely: (a) the Euclidean Algorithm for finding the greatest common divisors of two positive integers; (b) prime factorization of positive integers; (c) solution of cubic equations via Cardan's formula; (d) the use of continued fractions to find the fundamental solution of Pell's equation.

EVALUATION: Students will receive grades based on:

- (1) class presentations of solutions to homework problems;
- (2) mid-term exams, which will include some multiple-choice questions as well as some essay type questions;
- (3) a 1500-word paper on a topic in the history of mathematics chosen by the student with the instructor's approval.

COURSE OUTLINE:

Mathematics of antiquity, with emphasis on the Hellenistic tradition: 5 weeks

Mathematics during the Dark Ages and Middle Ages: 3 weeks

Mathematics from the Renaissance until the modern era: 7 weeks

TEXTBOOKS AND SOFTWARE:

David H. Burton *History of Mathematics* (5th ed.) McGraw-Hill

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