Tennessee Technological University
Mathematics Department

MATH 4610 (MATH 5610) History of Mathematics I

I. **COURSE DESCRIPTION FROM CATALOG:**
The development of mathematics and its relation to the development of civilization prior to the beginnings of calculus. Lecture 3. Credit 3.

II. **PREREQUISITE(S):**
C or better in Math 3400 (or consent of instructor for MATH 5610).

III. **COURSE OBJECTIVES:**
To show the development of mathematics over the ages.

IV. **STUDENT LEARNING OUTCOMES:**
Upon successful completion of the course the student will demonstrate an understanding of how cultures from different eras, including Mesopotamia, Greece, India, China, the Islamic world, and medieval and Renaissance Europe, interacted with and influenced each other, including a general sense of their timeframe and mathematical contributions; demonstrate a broad range of techniques used by those cultures to solve algebraic, geometric, and number theory problems; discuss the ways in which an ever-evolving understanding of the nature of numbers, the concept of proof, and the physical nature of the universe impacted ancient mathematics and the ways in which the teaching of mathematics was emphasized over the centuries; and compare the approaches taken by Newton and Leibniz in the development of calculus.

V. **TOPICS TO BE COVERED:**
1. Origins of number and culture
2. Mathematics in ancient Mesopotamia and Egypt
3. Mathematics in Greece
4. Alexandria and Euclid
5. Mathematics in ancient Rome
6. Mathematics in India, China and America before 1500
7. Islamic world
8. Medieval Europe and early Renaissance
9. Cubic and quartic equations
10. Cardano and Viete
11. Logarithms, Napier

VI. **ADDITIONAL INFORMATION:**
Graduate credit is earned on the basis of additional work required by the instructor. Graduate students are usually required to write an essay about a specific mathematician or a theory, and include at least four references other than the textbooks. They may also be required to make a seminar presentation in the class on a topic selected by the instructor.

Last Revised 12/14/16