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.

Graduate credit is earned on the basis of additional work required by the instructor per TTU Graduate Catalog.

Last Revised 12/14/16

VII. POSSIBLE TEXTS AND REFERENCES:

Howard Eves, *An Introduction to the History of Mathematics,* Saunders, 1990
Jeff Suzuki, *A History of Mathematics*, Prentice Hall, 2002
Ronald Calinger, *A Contextual History of Mathematics,* Prentice Hall, 1999
Carl B. Boyer, *A History of Mathematics*, 2nd ed., Wiley, 1991
David M. Burton, *The History of Mathematics: An Introduction*, 5th ed. McGraw-Hill, 2002
Morris Kline, *Mathematical Thought from Ancient to Modern Times*, vol. 1, Oxford University Press, 1990
H. L. Resnikoff & R. O Wells, Jr., *Mathematics in Civilization*, Dover, 1984
Ubiratan D'Ambrosio, H. Selin (Editor), *Mathematics Across Cultures: The History of Non-Western Mathematics*, Springer, 2001

VIII. STUDENT ACADEMIC MISCONDUCT POLICY:

Maintaining high standards of academic integrity in every class at Tennessee Tech is critical to the reputation of Tennessee Tech, its students, alumni, and the employers of Tennessee Tech graduates. The Student Academic Misconduct Policy describes the definitions of academic misconduct and policies and procedures for addressing Academic Misconduct at Tennessee Tech. For details, view the Tennessee Tech's Policy 217 – Student Academic Misconduct at Policy Central.

IX. DISABILITY ACCOMMODATION:

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view the Tennessee Tech's Policy 340 – Services for Students with Disabilities at Policy Central.