

History of Mathematics (3)

(Effective Spring 2013)

Prerequisite: Math 160 or Math 251.

Catalog Description: Study of the development of mathematics from ancient to modern times through problem solving. The investigation of the lives and works of specific mathematicians with particular attention to the development of ideas, notation, and the influence of mathematics on society.

Note: Outside readings and a paper or biography are required.

Learning Outcomes for Major: This course addresses one or more of the student learning outcomes for the major.

Upon completion of his/her degree from the University of Tennessee at Martin with a major in mathematics, the graduate will be able to:

- i. apply mathematical concepts and principles to perform numerical and symbolic computations.
- ii. use technology appropriately to investigate and solve mathematical and statistical problems.
- iii. write clear and precise proofs.
- iv. communicate effectively in both written and oral form.
- v. demonstrate the ability to read and learn mathematics and/or statistics independently.

Teaching Objectives: The student will:

1. Trace the development of Mathematics through the: Primitive Period; Mesopotamian Era; Egyptian Period; Greek Civilization; Arabic Era; Renaissance and Modern Era.
2. Give biographical information about important mathematicians of each period and be able to discuss their contributions to mathematics.
3. Discuss outstanding problems of each period and the quest for solutions.
4. Investigate solutions to some classic problems from each period.
5. Give a definition of Mathematics.
6. Use the library to research articles concerning the history of mathematics.

Text(s): The History of Mathematics an Introduction, 7th Edition, David Burton, McGraw Hill Publishers, 2011. ISBN: 978-0-07-338315-6.

Outline:	Chapter	Title (Sections)
	1	Early Number Systems and Symbols
	2	Mathematics in Early Civilizations
	3	The Beginnings of Greek Mathematics
	4	The Alexandrian School: Euclid
	5	The Twilight of Greek Mathematics: Diophantus
	6	The First Awakening: Fibonacci
	7	The Renaissance of Mathematics: Cardan and Tartaglia
	8	The Mechanical World: Descartes and Newton
	9	The Development of Probability Theory: Pascal, Bernoulli and Laplace
	10	The Revival of Number Theory: Fermat, Euler, Gauss
	11	Nineteenth-Century Contributions: Lobachevsky to Hilbert
	12	Transition to the Twentieth Century: Cantor and Kronecker
	13	Extensions and Generalizations: Hardy, Hausdorff and Noether

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