WILMINGTON UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
BASIC COURSE INFORMATION

COURSE NUMBER: MAT332

COURSE TITLE: The History of Mathematics

Faculty Name:

Contact Information:

Pre-Requisite: MAT308 or MAT312, MAT311 and MAT331

Text/Software:

Credits: 3

40 Hours of Structured Learning Activities

COURSE DESCRIPTION: This course provides an overview of the historical evolution of major concepts in mathematics including counting and number systems, geometry, algebra, calculus, and statistics. The contributions of various civilizations ranging from Babylonia and Egypt through Greece and the Middle East to the modern world are reviewed. Biographical sketches of some of the individuals who made major contributions to the development of mathematics are presented. The interrelationship between the evolution of mathematics, science, and technology is explored.

At the conclusion of this course students will be asked to evaluate the course based on the following objectives:

- Gain factual knowledge (terminology, classifications, methods, trends).
- Learn fundamental principles, generalizations or theories.
- Learn to apply course material (to improve thinking, problem solving and decisions).
COURSE GOALS

GOAL A: Discover the contributions of various cultures and selected mathematicians to the historical development of mathematics.

   Learning Objectives: The student will:

A-1 Explore the origins of number systems: Babylonian, Egyptian, Roman, Mayan.
A-2 Compare and evaluate the work of Greek mathematicians, such as Pythagoras, Hippocrates, Eudoxus, Euclid, Archimedes and Dionysius.
A-3 Explore the work of Roman mathematicians.
A-4 Compare the mathematical achievements of the Indian and Chinese cultures to the European cultures.
A-5 Analyze the influence of the mathematics of Islam on modern day Algebra
A-6 Explore the mathematics of the Renaissance.
A-7 Develop and integrate (using digital media) an interactive timeline of historical mathematicians, events, and concepts.

GOAL B: Analyze the evolution of the concept of number from tally marks through complex numbers.

   Learning Objectives: The student will:

B-1 Examine the historical development of the number one.
B-2 Formulate techniques for the approximation of Pi using classical techniques.
B-3 Solve problems using principles of Diophantine number theory.
B-4 Discover the development of the concept of “zero.”
B-5 Discover the development of algebra.
B-6 Examine the development of complex numbers and logarithms while utilizing them to solve modern problems
B-8 Examine the development of number theory.
B-9 Evaluate the various developments of calculus, specifically focusing on contributions from Newton, Leibniz, Euler, Bernoulli and Gauss.
B-10 Compare and contrast the development and characteristics of non-Euclidean geometries.
B-11 Examine the development of statistics, specifically focusing on Bernoulli, Legendre, Nightingale and DeMoivre.

GOAL C: Explore the interrelationship between mathematics, science, and technology.

   Learning Objectives: The student will:

C-1 Evaluate what mathematical concepts were critical in the development of computer technology
C-2 Examine the development of mathematics with regards to navigation on land and in space, specifically, Copernicus, Kepler and Galileo.
C-3 Discover applications of mathematics in the areas of code-breaking and encryption.

EVALUATION PROCEDURE AND GRADING POLICY:

Syllabus is sole property of Wilmington University
LATE ASSIGNMENT POLICY:

CAS CLASSROOM STANDARDS: See Blackboard “Syllabus” area

COURSE SCHEDULE (all assignments/exams and due dates):