

**SOUTHERN UNIVERSITY and A&M COLLEGE**  
**Baton Rouge, LA**

**MATH 401**  
**HISTORY OF MATHEMATICS**

**COURSE NAME:** HISTORY OF MATHEMATICS

**COURSE NUMBER:** MATH 401

**CREDIT HOURS:** 3 credit hours

**COURSE DESCRIPTION:** The evolution of the natural number concept, numeration systems, number theory, the history of computation, the roots of algebra, the origin and extensions of geometry, extension of number concepts, the nature of infinity, and the history of calculus from Archimedes to Weierstrauss.

**INSTRUCTOR'S EMPHASIS:** The contributions of mathematicians, renowned or otherwise, will be emphasized in this course with particular attention to various cultures. Every effort will be made to explore the historical background of mathematical concepts and ideas that are most familiar to learners. For various emphases, the utilization of timelines from prior to the seventeenth through the twenty-first centuries will facilitate learners in realizing the paradigm shifts in Mathematics and Mathematics Education. Introduction to National Council of Teachers of Mathematics (NCTM), its emphases and its resources on the World Wide Web (www) will be incorporated in this course.

**INTENDED AUDIENCE:** This course is designed for learners pursuing a degree in mathematics, the sciences, or education for the purpose of realizing 'the whole' of mathematics and its connection of real life experiences. These learners are exposed to the best teaching practices, several teaching strategies, and real life experiences during the semester. Multicultural education is embraced allowing for global perspectives of mathematics.

**PREREQUISITES:** None

**TEXTBOOK:**

1. Dantzig, Tobias. (2007). *Number: The Language of Science*, Plume Publishing
2. *Historical Topics for the Mathematics Classroom*. NCTM, Washington DC, 1989. [Supplementary]

**GENERAL GOALS:**

1. **To provide the learner with a solid understanding of the various strands which make up Mathematics**
2. **To familiarize the learners of several techniques and strategies for constructing mathematical proofs**

3. To stimulate learners to develop pedagogy or best teaching practices for becoming effective teachers of mathematics
4. To develop learners' skills to conduct independent research and as a result, make effective oral presentations and/or lectures

**LEARNING OUTCOMES:** Upon successful completion of this course, the learners will:

- be able to demonstrate their skill in conducting independent research by modeling short research projects after analyzing and critiquing multiple in-class research papers;
- be knowledgeable of the historical development of mathematics by exploring mathematical concepts and the contributions of mathematicians (Ahmes, Bernoulli, Cauchy, Descartes, Euclid, Fermat, Gauss, . . . , Newman, Pythagoras, , , Spikes, . . . ) from a variety of cultures;
- be able to articulate cultural aspects of mathematics by working in small discovery and discussion groups and making classroom presentations;
- be knowledgeable of number systems and various computations used by earlier cultures to solve mathematical problems by analyzing and performing those algebraic computations (when possible) during board exercise sessions and for written in-class and homework assignments on the maturity of such mathematical developments and methods;
- be able to expound on the form and content of mathematics by illustrating comparisons and interconnectedness of various branches of mathematics (Algebra, Calculus, Discrete Mathematics, Euclidean Geometry, . . . , Number Theory, . . . ) through class discussions, videos, research projects, and individual reporting; and
- be familiar with NCTM, some of its standards and its impact on teaching mathematics in the twenty-first century by learners discussing its Principals and Standards and visiting and reporting on current articles from its world wide web site.

**ASSESSMENT MEASURES:**

- A. Exams, quizzes, in-class assignments, group assignments, and homework submissions
- B. Written and oral presentations
- C. Final examination

**COURSE CONTENT:**

**Various aspects of Mathematics (concepts, problems or major challenges, branches or courses, mathematicians, tools, schools of thought, effects of teacher/pupil environments, etc.)**

- A. (Prior to seventeenth century)
- B. Seventeenth century
- C. Eighteenth century
- D. Nineteenth century
- E. Twentieth century
- F. Twenty-first century

## **COURSE EXPECTATIONS AND STUDENT SUPPLEMENTS:**

**Expectation:** Learners are expected to submit ALL research assignments, participate in class discussions, and prepare to make all assigned presentations.

**Attendance Policy:** Learners are expected to attend classes regularly and punctually. Excessive absences will be reported to the proper authorities, and excessive unexcused absences will adversely affect final grade. The learner is responsible for keeping up with all course work and submitting all work by applicable deadlines whether or not an excused absence had been granted.

**Other Resources:** Department of Mathematics Computer Laboratory, Department of Mathematics Tutorial Laboratory, Library, etc.

**Academic Dishonesty:** Adhere to honesty and integrity in work submitted for credit in this course and adhere to SUBR's Code of Conduct. **(Refer to current catalog.)**

**DISABILITY STATEMENT:** *If you have a documented disability, then please discuss it with personnel at 771-3950 in Room 125 of Blank's Hall. Learners that are considered as having a disability are to provide the professor with a letter from the Department of Special Education stating the appropriate accommodations required of this course.*

**GRADING POLICY:** To be determined by the professor.