MATH 5307: Mathematics History

Sul Ross State University Rio Grande College
Summer I 2023

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Course Description MTH 5307 covers early number systems and symbols, mathematics in early civilizations, and biographies of a representative sample of mathematicians along with an exploration of the chronological development of important ideas in mathematics.

Class Meetings As scheduled.

Required Text Kline, *Mathematical Thought from Ancient to Modern Times*, Vol. I, II, and III, ISBN 9780195061352, 9780195061369, 9780195061376

Course Policies

Attendance Policy

The class will meet online at scheduled using Blackboard Collaborate. Attendance at these meetings is mandatory and contributes toward your participation grade. You will need to have your webcam turned on, barring special circumstances.

Communication

The Blackboard system will be used to provide course materials, submit assignments, and post grades. You are welcome to e-mail, call, or text me at any time. My cell number is **(830) 333-0164**. Please identify yourself in your text or voicemail. Please make sure to check the e-mail address associated with Blackboard on a regular basis.

Reading

You will be expected to read two to three chapters each week. You will participate in discussions on the discussion board by posting questions or replying to other questions; I will also participate.

Our class time together will consist of student presentations. Each student will be assigned a part of the reading and prepare an informal presentation using PowerPoint or similar software. Each student should plan for their presentation to take about 45 minutes, though there will probably be many interruptions for discussion or explanation. I will also take time to highlight what I see as some of most important points.

Research Paper

You will write a 2000-word research paper about a mathematics history topic of your choice. The topic may be the development of a mathematical idea or an aspect of a biography of a famous

mathematician. Plan to have your topic selected by June 12. Additional details will be provided later in the semester.

Grading Policy

Your grades will be weighted as follows:

Reading Presentations	80%
Research Paper	20%

A student who averages at least 90% will receive an A; at least 80% will receive at least a B; at least 70% will receive at least a C; at least 60% will receive at least a D.

Subject Outline and Schedule

Below is a tentative schedule for course reading and discussion. This is subject to revision as the semester progresses.

- June 5 – 9
  - Course Orientation
  - Chapter 3: The Creation of Greek Mathematics
  - Chapter 4: Euclid and Apollonius
  - Chapter 5: The Alexandrian Greek Period: Geometry and Trigonomery

- June 12 – 16
  - Chapter 6: The Alexandrian Period: The Reemergence of Arithmetic and Algebra
  - Chapter 7: The Greek Rationalization of Nature
  - Chapter 8: The Demise of the Greek World
  - Chapter 11: The Renaissance
  - Chapter 12: Mathematical Contributions in the Renaissance
  - Chapter 13: Arithmetic and Algebra in the Sixteenth and Seventeenth Centuries
  - Chapter 14: The Beginnings of Projective Geometry
  - Chapter 15: Coordinate Geometry

- June 19 – 23
  - Chapter 16: The Mathematization of Science
  - Chapter 17: The Creation of the Calculus
  - Chapter 18: Mathematics as of 1700
  - Chapter 19: Calculus in the Eighteenth Century
  - Chapter 20: Infinite Series
  - Chapter 23: Analytic and Differential Geometry in the Eighteenth Century
  - Chapter 25: Algebra in the Eighteenth Century

- June 26 – 30
  - Chapter 26: Mathematics as of 1800
  - Chapter 31: Galois Theory

- Chapter 32: Quaternions, Vectors, and Linear Associative Algebra
- Chapter 33: Determinants and Matrices
- Chapter 35: The Revival of Projective Geometry
- Chapter 36: Non-Euclidean Geometry

July 6
- Chapter 40: The Instillation of Rigor in Analysis
- Chapter 41: The Foundations of Real and Transfinite Numbers
- Chapter 42: The Foundations of Geometry
- Chapter 43: Mathematics as of 1900

University Statements

Distance Education Statement: *Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.*

SRSU Disabilities Services: *Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. RGC students seeking accessibility services should contact Paulette Harris, Executive Assistant to the Vice President and Dean, at 830-279-3023 or email pharris@sulross.edu. Ms. Harris's office is at 2623 Garner Field Road, Uvalde, TX 78801 (this is the mailing address, too).*