



Department of Computational, Engineering, and Mathematical Sciences

**MATH 3326: History of Mathematics, Section 001**  
**Spring 2024**

**Instructor: Dr. Qi Han**

**Class Meeting: MWF 13-13:50pm**

**Classroom: Classroom Hall 204**

**E-mail: [qhan@tamusa.edu](mailto:qhan@tamusa.edu)**

**<https://apps.tamusa.edu/course-information/my-profile/faculty-Profile.php?ID=358>**

**Office Hours: MF 8:30-9:30am, WF 2-3pm, and/or via email**

**Or by appointment via email, read regularly between 8:30am~8:30pm**

**Credit Hours: 3**

**Office Phone: (210) 784-2262**

**Office: Classroom Hall 314P**

**Course Description and Materials**

**Catalog Description:** The history of mathematics is a vast subject, and this course concentrates on early mathematical discoveries from ancient Egypt, Mesopotamia, Greece, China, India, the Middle East, and Europe to the period right before Newton and Leibniz, assuming that the students would be exposed to subsequent developments in mathematics in other courses.

**Prerequisite:** MATH 2114 and MATH 2314; both prerequisites require a grade of “C” or higher.

**Required Textbook:** Journey Through Genius: The Great Theorems of Mathematics by William Dunham (the 1<sup>st</sup> edition), Wiley with ISBN: 978-0-471-50030-8.

**Student Learner Objectives:** Upon the completion of this course, students will be able to:

1. Understand the development of mathematics, see the ways various mathematical concepts were initially presented, and compare this with contemporary approaches.
2. Gain deeper insights into mathematical concepts and be introduced to new mathematical ideas through exposure to primary historical sources and other materials.
3. Understand the contributions of some of the world’s great mathematicians to a wide variety of mathematical areas/fields/topics, see how various mathematical concepts/results are interrelated to each other and how/where important mathematical ideas come from.
4. Appreciate the significant contributions that female and nonwestern mathematicians made to the mathematics discipline throughout history using a historical viewpoint on and a humanistic approach to the evolution of mathematics.
5. Perceive how mathematicians think and do mathematics, and enhance your ability to think logically in attacking and solving a wide variety of problems.
6. Improve your written and oral communication skills in the context of mathematics.

**List of Topics:** Topics to be covered include but are not limited to the following:

1. Hippocrates’ Quadrature of the Lune (ca. 440 B.C.) (Chapter 1).
2. Euclid’s Proof of the Pythagorean Theorem (ca. 300 B.C.) (Chapter 2).
3. Euclid and the Infinitude of Primes (ca. 300 B.C.) (Chapter 3).
4. Archimedes’ Determination of Circular Area (ca. 225 D.C.) (Chapter 4).
5. Heron’s Formula for Triangular Area (ca. A.D. 75) (Chapter 5).
6. Cardano and the Solution of the Cubic (1545) (Chapter 6).

7. A Gem from Isaac Newton (Late 1660s) (Chapter 7).
8. The Bemoullis and the Harmonic Series (1689) (Chapter 8).
9. The Extraordinary Sums of Leonhard Euler (1734) (Chapter 9).
10. A Sampler of Euler's Number Theory (1736) (Chapter 10).
11. The Non-Denumerability of the Continuum (1874) (Chapter 11).
12. Cantor and the Transfinite Realm (1891) (Chapter 12).

The instructor reserves the right to modify/update the topics as appropriate.

**Inquiry-Based Active Learning:** This course implements inquiry-based active learning approaches throughout, and thus the students are strongly encouraged to preview the teaching materials and be aware of many class-participation and self/peer study activities.

**NOTE.** This class meets three times a week. Aside from the three hours that you spend in class each week, you should devote at least another 4~6 hours to studying on your own: reading the book and my lecture notes, working out your homework assignments, and solving some extra related problems for practice etc. You are responsible for any and all materials/topics discussed in this class.

### Course Expectations and Requirements

**Examinations:** There will be twelve midterm tests (essays) during the semester and one comprehensive final exam (final essay) in the end (scheduled during the Finals Week). Each test (essay) covers the corresponding chapter.

Students will take all examinations at regularly scheduled times. Exceptions for a legitimate reason may be granted and must be approved in advance by your instructor. Students should notify, or under certain unusual circumstances have other(s) to notify, the instructor formally that you will miss, or have missed an exam, and provide a reason with accompanying documents supporting that, for your absence within 24hrs of the scheduled exam date. Your instructor can be notified via e-mail with a written notice. Contact beforehand your instructor to make necessary arrangement, if you know in advance that you will be unable to take an exam at the regular class time. Students who fail to follow the prescribed procedure will receive a **GRADE OF ZERO** on the missed exam.

Examples of valid documented excuses are sickness documented with a doctor's note, death in the family documented with a copy of the death notice, attending university-sponsored events with a Dean's excuse, etc. Minor illness, or attending sports events and like kind (without a Dean's excuse) are not examples of emergency situations.

Final exam schedule is available at  
[XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX](#)  
For this class, the final exam is scheduled on **TBA**

**NOTE.** The schedules will be announced at least a week ahead of time in class, in Blackboard, and through emails. The tests/exam will be taken completely in class. Calculators (except for scientific non-graphing, non-programmable calculators), cell phones, laptops, i-pads, kindles, and any other electronic devices are absolutely **NOT** allowed during the tests/final exam. Once found, the tests/final exam would receive a **GRADE OF ZERO**, and if this happened in a recursive manner, the instructor would report to the university as an academic dishonesty issue.

**Presentations/Debates:** Students will be expected to participate in class presentations/debates, emphasizing the most recently covered topics that are related to and complementing essays.

**Research Project:** Towards the end of the semester, you will be given a book chapter to read and write a research report, along with some other work. This is to expose you first experience to mathematical research.

**Evaluation of Student Performance:** Every student's grade will be based entirely on his/her performance. Students will not compete against one another for grades.

### Grading Policy

Presentations/Debates: 3%    Research Project: 6%    Midterm Tests 1-12: 7% each    Final Exam: 7%

A = 90~100%    B = 80~89.9%    C = 70~79.9%    D = 60~69.9%    F = 0~59.9%

**NOTE.** The final grade utilizes a **weighted** average. Please do **NOT** simply take the average of all grades posted on the blackboard as your final grade. A helpful link is <https://www.indeed.com/career-advice/career-development/how-to-calculate-weighted-average>

**NOTE.** The instructor reserves the right to modify/update the information of this syllabus as appropriate.

### No Use of Generative AI Permitted

This class MATH 3326 assumes that all work submitted by students will be generated by the students themselves, working individually or in groups. Students should not have another person/entity do the writing of any portion of an assignment for them, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. Use of any AI-generated content in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

## IMPORTANT POLICIES AND RESOURCES

**Academic Accommodations for Persons with Disabilities:** Texas A&M University-San Antonio is committed to providing all students with reasonable access to learning opportunities and accommodations in accordance with The Americans with Disabilities Act, as amended, and Section 504 of the Rehabilitation Act. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Support Services in the Central Academic Building, Suite 210, or at (210) 784-1335 or visit <https://www.tamusa.edu/index.html> or email us at [dss@tamusa.edu](mailto:dss@tamusa.edu). Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability-related needs with Disability Support Services and their instructors as soon as possible.

**Academic Learning Center:** The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing [tutoring@tamusa.edu](mailto:tutoring@tamusa.edu), calling (210) 784-1307, or visiting the Central Academic Building, room 202.

**Counseling/Mental Health Resources:** As a college student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily functioning. If you are experiencing emotional difficulties or mental health concerns, support is available to you through the Student Counseling Center (SCC). To schedule an appointment, call (210) 784-1331 or visit Madla 120. All mental health services provided by the SCC are free and confidential (as the law allows). The Student Counseling Center provides brief individual and group therapy, crisis intervention, consultation, case management, and prevention services. Crisis support is available 24/7 by calling the SCC at (210) 784-1331 (after-hours select option '2'). For more information and self-help resources, please visit [www.tamusa.edu/studentcounseling](http://www.tamusa.edu/studentcounseling)

**Emergency Preparedness:** JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email with instructions and updates. To register or update your information visit: <https://tamusa.bbcportal.com/>

More information about Emergency Operations Plan and the Emergency Action Plan can be found here:

<https://www.tamusa.edu/about-us/campus-information/safety/university-police-department/documents/emergency-operations-plan.pdf>

and

<https://www.tamusa.edu/about-us/campus-information/safety/university-police-department/documents/emergency-action-plan.pdf>

Download the SafeZone App for emergencies or call (210) 784-1911. Non-Emergency (210) 784-1900

**Financial Aid and Verification of Attendance:** According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend the first week of class will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

**Writing, Language, and Digital Composing Center:** The Writing, Language, and Digital Composing Center supports graduate and undergraduate students in all three colleges as well as faculty and staff. Tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Our language tutors support students enrolled in Spanish courses and students composing in Spanish for any assignment. Our digital studio tutors support students working on digital projects such as eportfolios, class presentations, or other digital multimedia projects. Students can schedule appointments through JagWire under the Student Services tab. Click on "Writing, Language, and Digital Composing Center" to make your appointment. The Center offers face-to-face, synchronous online, and asynchronous digital appointments. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at <https://bit.ly/WLDCCenter>

**Meeting Basic Needs:** Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students ([DOS@tamusa.edu](mailto:DOS@tamusa.edu)) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources they may possess.

**Military Affairs:** Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also

encouraged to visit the Patriots' Casa in-person room 202, or to contact the Office of Military Affairs with any questions at [military.va@tamusa.edu](mailto:military.va@tamusa.edu) or (210) 784-1397.

**Religious Observances:** Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

**The Six-Drop Rule:** Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

**Statement of Harassment and Discrimination:** Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equality of opportunity and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, gender identity, gender expression, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Texas A&M University-San Antonio faculty are committed to providing a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, know that help and support are available. A&M-San Antonio's Title IX Coordinator can support those impacted by such conduct in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the Title IX Coordinator. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and trained victim advocates) are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator ([titleix@tamusa.edu](mailto:titleix@tamusa.edu), (210) 784-2061, CAB 439K).

If you wish to speak to a confidential employee who does not have this reporting requirement, you can contact the Student Counseling Center at (210) 784-1331 or visit them in Madla 120.

**Pregnant/Parenting Students:** Texas A&M-San Antonio does not require a pregnant or parenting student, solely because of that status or issues related to that status, to (1) take a leave of absence or withdraw from their degree or certificate program; (2) limit the student's studies; (3) participate in an alternative program; (4) change the student's major, degree, or certificate program; or (5) refrain from joining or cease participating in any course, activity, or program at the University. The university will provide reasonable accommodations to pregnant students that would be provided to a student with a temporary medical condition and that are related to the health and safety of the student and the student's unborn child. These could include maintaining a safe distance from substances, areas, and activities known to be hazardous to pregnant individuals and their unborn child; excused absences because of illness or medical appointments; modified due dates for assignments; rescheduled tests/exams; taking a leave of absence; and being provided access to instructional materials and video recordings of lectures for excused absences, if these would be provided to any other student with an excused absence. Pregnant/parenting students are encouraged to contact the Title IX Coordinator with any questions or concerns related to their status ([titleix@tamusa.edu](mailto:titleix@tamusa.edu); (210) 784-2061; CAB 439K).

Texas A&M-San Antonio has also designated the Title IX Coordinator as the liaison officer for current or incoming students who are the parent or guardian of a child younger than 18 years of age. The Title IX Coordinator can provide students with information regarding support services and other resources.

**Students' Rights and Responsibilities:** The following statement of students' rights and responsibilities is intended to reflect the philosophical base upon which University Student Rules are built. This philosophy acknowledges the existence of both rights and responsibilities, which is inherent to an individual not only as a student at Texas A&M University-San Antonio but also as a citizen of this country.

#### *Students' Rights*

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no University rule or administrative rule that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the University, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

#### *Students' Responsibilities*

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty and administration.
2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, [Student Code of Conduct](#), on our website, University Catalog and to comply with them, as well as federal, state, and local laws.
3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire University community.
4. A student has the responsibility to recognize the University's obligation to provide an environment for learning.
5. A student has the responsibility to check their university email for any updates or official university notification.

We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

Students are expected to exhibit a high level of honesty and integrity in their pursuit of higher education. Students engaging in an act that violates the standards of academic integrity will find themselves facing academic and/or disciplinary sanctions. Academic misconduct is any act, or attempt, which gives an unfair advantage to the student. Additionally, any behavior specifically prohibited by a faculty member in the course syllabus or class discussion may be considered as academic misconduct. For more information on academic misconduct policies and procedures please review the [Student Code of Conduct](#)

#### **Important Dates:**

|             |                                                           |
|-------------|-----------------------------------------------------------|
| January 16  | First day of class                                        |
| March 11-17 | Spring Break – No classes                                 |
| March 29    | Study Day – No classes                                    |
| April 13    | Last day to drop with an automatic "W"                    |
| April 20    | Last day to drop a course or withdraw from the University |
| April 29    | Last day of classes                                       |
| April 30    | Study Day – No classes                                    |
| May 1-7     | Final exams                                               |

The complete academic calendar is available online: <https://www.tamusa.edu/academics/academic-calendar/index.html>