



## Course Information

Course Number:	MATH 467
Course Title:	Modern Geometry (writing-intensive)
Section:	900 Spring 2021
Time:	TR 5:00-6:15
Location:	ZOOM 992 6907 3821 (passcode to be announced)
Credit Hours:	3
Class Web Page:	<a href="http://calclab.math.tamu.edu/~fulling/m467/s21/">calclab.math.tamu.edu/~fulling/m467/s21/</a>

## Instructor Details

Instructor:	S. A. Fulling
Office:	ZOOM 957 9632 7828 (passcode to be announced)
E-Mail:	<a href="mailto:fulling@math.tamu.edu">fulling@math.tamu.edu</a>
Office Hours:	T 11:00-12:00, W 1:00-2:00, F 11:00-12:00 (subject to change)

## Course Description

*Euclidean geometry is developed from a modern viewpoint, following the axioms proposed by Hilbert, with special attention to the question of which conclusions are independent of the parallel postulate. Then we examine a particular non-Euclidean geometry, the hyperbolic one. The historical and philosophical context of these developments is given considerable attention.*

## Course Prerequisites

*Some experience with reading and writing proofs: linear algebra (M. 304, 309, 311, or 323) or M. 220.*

## Special Course Designation

This is a W course (writing-intensive). The major papers, homework essay questions, and midterm essay question will be revised and regraded. To get W credit for the course, you must have a passing grade on the writing assignments (the 3 items just mentioned plus the final exam essay).

## Course Objectives

- 1. To acquaint students with non-Euclidean geometry, a development of the utmost historical and philosophical significance in the development of mathematics.*
- 2. To help develop facility with logical thinking. (This includes, in particular, the distinction between reasoning from abstract axioms containing undefined terms and reasoning from facts about things we already know something about.)*
- 3. To prepare future teachers of high-school geometry to approach Euclidean geometry from a well-informed, modern perspective. (Note: NOT "to teach how to teach high-school geometry".)*
- 4. To develop facility in the writing of mathematical expositions and proofs, with appropriate attention to clarity, accuracy, and form.*

## Textbook

M. J. Greenberg, *Euclidean and Non-Euclidean Geometries: Development and History*, 4<sup>th</sup> ed., Freeman, 2008. The course covers the first 7 or 8 chapters of the book.

## Grading Policy

Midterm test	80
Midterm test essay question	20
Final exam	125
Final exam essay question	25
Homework	80
Homework essay questions	6 x 10 = 60
Papers	50 x 2 = 100
Class participation	60
Total	550

The “curve” will be at least as generous as the “standard” scale [i.e., 90% (= 495 points) will guarantee an “A”, etc.]. The part of a test devoted to essay-type questions may be larger than the minimum indicated above.

*Class participation most often consists of working on problems in small groups (Zoom break rooms) and reporting results to the class, during class and via eCampus discussions. Attendance (reported by Zoom) will directly influence the class participation score slightly.*

*Papers: Choose a topic from the “Major Exercises” and “Projects” lists in the textbook, or propose a topic of your own. The second one should come from fairly late in the book. (More detailed guidelines will be provided later.) Write carefully and formally (“English counts!”).*

## Late Work Policy

Acceptance of late homework is at the discretion of the person doing the grading (the professor for W components and tests, a grad student grader for regular homework). Normally it will be graded if it is feasible to do so. Egregiously late work (e.g., 5 assignments submitted a week before the final exam) will not be graded except in unusual extenuating circumstances.

## Course Schedule

*Please see the class web page for a detailed schedule of topics and for the homework and class-discussion assignments. Assignments will be submitted through GradeScope; due dates may vary week to week and will usually not be days of our class meetings.*

*Due dates of major papers: Mon. Feb. 22 (changed to March 1); revision Fri. March 12 (changed to March 15)*

*Mon. April 19; revision Fri. April 30*

*Date of midterm test: Thursday, March 4 (changed to March 11)*

*Final Exam: Thursday, May 6, 2:00 p.m. - 4:30 p.m.*

## University Policies

### Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

### Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

### Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" ([Section 20.1.2.3, Student Rule 20](#)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at [aggiehonor.tamu.edu](http://aggiehonor.tamu.edu).

*Plagiarism: Finding information in books or on the Web is praiseworthy; lying (even by silence) about where it came from is academic dishonesty. Whenever you copy from, or “find the answer in”, some other source, give a footnote or reference. Otherwise, you are certifying that it is your own work.*

*Joint work: On a homework assignment (not a take-home test!) discussion with other students is permitted, even encouraged. However, the grader will not give homework credit for “work” that is parasitical (and your test scores will suffer, too). To forestall problems, please follow these policies: (1) When two or more students work together on an assignment, they should all indicate so on their papers. (2) If the cooperation is of the divide-and-conquer variety, you are certifying that YOU HAVE STUDIED AND UNDERSTAND every problem solution on your paper. Mindless copying is dishonest and academically worthless.*

*Copyright: Course materials (on paper or the Web) should be assumed to be copyrighted by the instructor who wrote them or by the University.*

*Calculators in exams: Calculators are to be used only to perform elementary operations such as addition, multiplication, and evaluation of simple functions such as square roots, sines, and logarithms. Advanced facilities such as storing formulas in memory, inverting matrices, and graphing functions on the calculator display are prohibited. Violations of this rule may lead to total prohibition of calculators in exam (probably at the insistence of other students).*

## Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit [disability.tamu.edu](http://disability.tamu.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 Resources and their instructors as soon as possible.

## Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](#) (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s [Title IX webpage](#).

## Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student’s academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](https://suicidepreventionlifeline.org).