Euclidean and Non-Euclidean Geometries
MAT 1301
Spring 2025

Instructor:	Dr. Matt Dallas
Office:	Haggerty Science Center 051
E-mail:	mdallas@udallas.edu

Class Meeting Times:	TR 9:30 - 10:50 AM in HSC 101
Office Hours:	MW 10:00 - 11:00 AM & 1:00 - 2:00 PM TR 2:00 - 3:00 PM

Grading

Proofs: 50% Presentation and Participation: 25%

Midterm Exam: 10% Final Exam: 15%

Proofs

After the midterm, you will be given a set of conjectures, i.e., a list of mathematical statements that may or may not be true. Resolving these conjectures, either by providing a valid proof for those that are true, or constructing a counterexample for those that are false, is the main objective in this course.

A conjecture that is proven true is called a *theorem*. During the course of the semester, you will submit your own **typed** proofs of about 20 of these theorems. You will submit these in Brightspace. I will grade them, give feedback, and return them for revision. Your 15 best post-revision proofs will determine this portion of your grade. **Your proofs must be your own.**

Presentation & Participation

You are required to present your ideas and resolutions to conjectures at least **three times** throughout the semester. At least **two** of these must be proofs of theorems. Exhibition of a counterexample for a false conjecture will not count towards these two proofs, but may serve as your third presentation. Your presentations are not expected to be perfect. You will receive credit for your presentation as long as you demonstrate a good-faith effort on your part to present your ideas and resolution of the given conjecture. Presentations without sufficient preparation or reflection will not receive credit.

Mathematics is a very social discipline. **Class discussion** is therefore an essential part of this course. It is your responsibility to provide thoughtful, and respectful, feedback to your classmates' presentations. Insufficient attendance and contributions to discussions will result in a decrease in this part of your grade.

Exams

There will be a midterm and a final exam. The midterm will likely be held at the end of February or early March. The final will be held on Wednesday, May 14 from 8:00 AM to 10:00 AM in Haggerty Science Center 101 (our regular room).

Course Description and Objectives

The goal of this course is to discover the heart of mathematics: **proofs**. The construction of proofs requires precise language and logic. We will therefore explore rules of logic, what constitutes a valid proof, and the construction of models to form counterexamples.

Attendance	You are expected to attend class. After three unexcused absences you will receive a warning letter from the Registrar. Additional unexcused absences can result in mandatory withdrawal from the course. Visit Class Attendance Policy for information regarding absences due to athletic and University-sponsored events. If you are attending a University-sponsored event that will cause you to miss an exam, you must let me know **at least two weeks in advance.**
Academic Dishonesty	The University's policy on academic honesty may be found here. Collaboration on problems is encouraged, but the expectation is that the work you submit is your own. If you run into difficulties with a problem, the best thing to do is ask a friend or your instructor. I understand that **generative AI** such as ChatGPT can be helpful for various tasks, so my policy is not total prohibition. I only ask that if you choose to use a generative AI, due so with caution. They are not experts in mathematics, or any other field, and can produce inaccurate, misleading, or outright incorrect results. Further, if you rely on sources besides yourself to solve homework problems, it is very likely that your exam and final project scores will suffer.
Accommodations	Students with a qualifying disability may request accommodations here. You must provide me with a letter of accommodation no later than the fourth day of class. You must also schedule a meeting with me within a week of submitting your letter to discuss those accommodations that are mutually acceptable. **Accommodations will not be granted without an accommodation letter.**
Important Sp25 Dates	*Classes Begin* Wednesday; January 22, *Spring Break* March 15 - March 23; *Easter Break* April 17 - April 21; *Classes end* Thursday, May 8

Note: Information in this syllabus is subject to change. Any changes will be clearly announced in class and through e-mail.