

Math 402, Section F13 & F14
Non-Euclidean Geometry
MWF, 2-2:50p, 347 Altgeld Hall

Professor: Dominic Culver

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Office Hours: T2-3p, W4:30-5:30p or by appointment

The contents of this syllabus are subject to change at anytime during the semester.

Official Course Description: Historical development of geometry; includes tacit assumptions made by Euclid; the discovery of non-Euclidean geometries; geometry as a mathematical structure; and an axiomatic development of plane geometry.

Prerequisite(s): Math 241, 347, or 348; or consent of the instructor.

Credit Hours: 3 or 4

Text(s): *Exploring Geometry (with Geometry Explorer)*, Michael Hvidsten

This book is out of print, but the author has generously made an electronic copy available for personal use. It can be found at <http://new.math.uiuc.edu/public402/Hvidsten.pdf>. You could also try to purchase a used copy.

Software: Geometry Explorer, available at <http://homepages.gac.edu/~hvidsten/gex/download-3.0.html>

Grade Distribution:

Quizzes and Participation	2%
HW	13%
Project reports	10%
Midterm Exams	3×15%
Final Exam	30%

Exam Dates:

Exam 1	February 23
Exam 2	March 30
Exam 3	April 27
Final Exam	TBA

Course structure:

- **Reading assignments:** A reading assignment for each day of class will be posted on the course webpage ahead of time. These should be completed *before class* and should be reviewed several times after.
- **Worksheets:** One class per week, typically Fridays, will be devoted to group work. You will be given a worksheet and asked to work on it in groups of 3-4. To get the most out of this activity, it is extremely important to come to class prepared, i.e. having done the reading assignments throughout the week.
- **Assignments:** Homework will typically be assigned every week on Friday and due the following Friday.
- **Projects:** Almost every week, a **project** will be assigned, and a **report** will be due the following Monday in class. You will be asked to perform some experimentation with a mathematical phenomenon using the Geometry Explorer software. Moreover, you will supplement that with formal reasoning in order to understand the patterns or mathematical laws behind said phenomenon. The assignment will be to write a report on what you have learned and how. In general, the reports should contain about a page of essay-style discussion, in addition to any formal mathematical exercises.

Course Policies:

- **Grades**
 - We will be using Moodle for this course. Please let me know of discrepancies in your grade as they appear throughout the term.
- **Assignments**
 - No late homework will be accepted. However, I will drop the lowest Homework grade.
 - Typically, homework assignments will be due on Fridays, and I will strive to have them returned the following Friday.
 - You are permitted, and in fact encouraged, to discuss homework problems with your fellow classmates. However, the solutions you submit **must** be written in your own words. To elaborate, this does not simply mean the physical act of writing. One should independently write one's assignment without the assistance of outside sources (including people). You *must* list your collaborators on each homework assignment.
- **Exams:**
 - All exams will be closed book and closed notes. The use of calculators or other electronic devices is not permitted.
 - There will be no make up exams. If you have a conflict, you must let me know ahead of time so that we can come to a satisfactory arrangement.
 - There will be three midterm exams, each will be 50 minutes and given in class.
 - The final exam must be given at the officially assigned Final Exam slot provided by the University. In particular, a student is not permitted to take an earlier exam to accommodate travel plans. The final exam schedule will be made public on October 4, so make travel plans after this date.

- **Attendance and Absences**

- Students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes or materials.

- **Students with disabilities:**

- Students with disabilities who require reasonable accommodations to should see me as soon as possible. In particular, any accommodation on exams must be requested at least a week in advance and will require a letter from DRES.

- **Academic integrity:**

- Cheating is taken very seriously, so please don't do it. Penalties for cheating on exams, in particular, are very high, typically resulting in a 0 on the exam or an F in the class.

Tips for Success (in math classes in general): Reading and learning mathematics takes a great deal of time and effort, and there is no shortcut to understanding the material. The following are some good habits to develop for learning mathematics.

- Give yourself plenty of time to think about the problems, examples, definitions, and ideas from the course, and think about them often. It takes time to become comfortable with the material.
- When doing your reading assignments, or reviewing the material, it is a good idea to try and prove the various statements on your own, referring to the textbook or your notes only when you truly get stuck. This can be done before and after your reading assignments.
- Make sure you understand the definitions. This implies being able to give an example and indicating the conceptual idea behind the definition. Having pictures in mind can also be helpful. When learning definitions at first, I highly recommend reading the definition, and then writing it down by hand in your own words.
- Discuss the material with me, or even better, with your fellow classmates. Very often, two people have different ways of understanding the material. Discussing with your classmates will not only clarify and improve your understanding, but enrich it as well.
- Take advantage of office hours!
- Ask yourself questions, and try to answer them. If you can't, come to office hours.