

MATH 431
Topics in Geometry for Teachers
Fall 2006

“One must be able to say at all times—instead of points, straight lines, and planes—
tables, chairs, and beer mugs.” *David Hilbert (1862–1943)*

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Office hours: Monday 10:30-11:30, Wednesday 2:30-3:30, Friday 10:30-11:30, and by appointment.

Course website: <http://www.math.lsa.umich.edu/~eminaa/teaching/431/>

Textbook: *Euclidean and non-Euclidean geometries: development and history*, 3rd ed., Marvin Jay Greenberg, W. H. Freeman and Company, 1994.

Syllabus: The core of this course is an axiomatic treatment of Euclidean plane geometry and hyperbolic plane geometry. We will cover most of Chapters 2-4 and selected topics from later chapters of the textbook. Additional topics not in the textbook will be explored as time permits. This course is also an introduction to the process of doing mathematics rigorously; there will be an emphasis on writing proofs.

Grading:

Your grades will be determined based on homeworks (30 %), midterms (20 % each) and final project (30 %). These are components that are easily quantifiable. However, attendance and participation will also influence your grade substantially (i.e. I reserve the right to change your grade half a letter grade up or down for each of the two). It is essential that you attend the class and actively participate in discussions and class work.

Homework: Homework for the entire course consists of nine problem sets. Each problem set must be completed and submitted by groups. Try to completely solve each problem on your own before meeting with your group to compare results and write up final solutions. Each student is expected to contribute to his or her group. Homework must be submitted in class on the due date.

Note: Just because this is a math class does not mean you are allowed to make grammar, spelling and other mistakes that would imply you should be in an English class instead. Complete presentation will be graded!

I will further insist that you come to each class having read that day's lesson. This way we can have more conversation, and less lecturing.

Exams: The first midterm exam will be given in class on Friday, 10/7. The second midterm exam will be given in class on Friday, 11/10. A list of relevant axioms and theorems will be provided for reference during each exam. The form of the final exam is to be determined by a democratic process. The choices are: in class exam at a time scheduled by registrar's office or a take-home problem set due on 12/15.

- The office hours I listed are just a suggestion. If you have some other time that you prefer, let me know. Even if we don't change the times, just let me know and I will meet with you outside office hours.
- Students may drop the class without penalty or permission through the 25th of September. After that date they can withdraw only by obtaining permission from the Academic Unit and will have W on their transcript.
- If, at any point, you want to give me some feedback about my teaching you will find an anonymous evaluation form on the course webpage.
- The Americans with Disabilities Act requires that reasonable accommodations be provided for students with physical, cognitive, systemic, learning or psychiatric disabilities. Please, contact me **at the beginning of the semester** to discuss any such accommodations for this course.