

**Instructor:** Elena Pavelescu      **Time:** MWF 2:00-2:50PM  
**Office:** 420 Herman Brown      **Classroom:** Herman Brown Hall (HB) 227  
**Email:** ep6@rice.edu      **Office Hours:** Mon 10-11am, Wed 3-4pm, Thu 2-3pm  
**Phone:** x4585  
**Course webpage:** <https://math.rice.edu/~ep6/math366.html>

**Teaching Assistant :** Peter Horn, phorn@rice.edu  
**Help Sessions:** Tue 2-4pm, HB 45

**Text:** J. Greenberg, *Euclidian and non-euclidian geometry, 4th edition*

We will roughly cover chapters 1 through 7 and, time permitting, selected topics from chapters 9 and 10.

**Course Overview:** One cornerstone of Euclidean geometry is the parallel line postulate: *For each line  $l$  and each point  $p$  that does not lie on  $l$ , there exists a unique line  $m$  through  $p$  parallel to  $l$ .* For thousands of years, it was expected (but not proven!) that this follows from the other axioms of geometry. In fact it does not, and there are non-Euclidean geometries with radically different notions of parallel lines. Two examples are spherical geometry and hyperbolic geometry. We will develop plane geometry using various sets of axioms, keeping careful track of which properties follow from which axioms. In particular, we will isolate the results that do not require the parallel axiom. Concrete models of non-Euclidean geometry will be constructed.

**Homework:** Homework is particularly important in this course. Homework will be assigned each week, on or before Friday, and it will be due the following Friday, at the beginning of class. It is very important that you work on every assigned problem. I encourage you to talk to other students about the homework problems, however, you must write up your own solutions and they should reflect your own understanding. Assignments will be posted on the course webpage.

**Exams:** There will be one midterm exam during the regular class meeting on Wed., Feb 25th. There is also going to be a final exam, during the last week of classes.

**Grades:** The homework and the midterm exam will each count as 30% of your final grade. The final exam will count for 40% of the final grade.

**Attendance:** I expect you to attend every class. It is your responsibility to keep informed of any announcements made during scheduled classes.

**Success:** The most successful students tend to:

- Attend every class,
  - Read the book and review their notes daily,
  - Work on all the homework as it is assigned,
  - Seek help as soon as they encounter trouble.
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I encourage you to utilize my office hours or ask your classmates whenever you are having trouble understanding the course material. Get your questions answered as they arise – waiting until you have many questions (or until an exam is looming!) will make help in any form less effective.

**Disability Support:** If you have a documented disability that will impact your work in this class, please contact me to discuss your needs. Additionally, you will need to register with the Disability Support Services Office in the Ley Student Center.

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