

**Math 331**  
**Fundamentals of Geometry – Spring 2007**

67-331-101 11:30–12:30 MTWF Swart 13

“The knowledge of which geometry aims is the knowledge of the eternal.”

Plato (c. 429-347 BC) from *Republic*, VII, 52.

**Instructor:** Steve Szydlik

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**Office Hours:** MF  $\approx$ 8:20–8:50 (for quick questions), M 1:50–2:40, TW 10:20–11:20. I am available at other times as well. Just ask!

**Text:** *Euclidean and Non-Euclidean Geometries: Development and History*, Third Edition, by Greenberg.

**Other Materials:** We will study geometric constructions in this course, so you should purchase a (quality) compass and a straight edge. You may also find it helpful to have a floppy disk, zip disk, or media drive for saving work when we use the computer lab.

**Course Topics:** Math 331 is an introduction to Euclidean geometry from an axiomatic point of view. This means that we'll develop geometry from first principles, making precise definitions and statements about our assumptions. The course will have a lot of formalism – we'll be very careful about our language and rules of logic and we'll do lots of formal proofs. At the same time, however, we'll get a feel for the historical development of geometry as a field of study. One appealing aspect of Greenberg's book is that the development of our knowledge of geometry will in many ways parallel the history of the subject, culminating in the discovery of non-Euclidean geometries.

In this course, we can expect to thoroughly cover the first three or four chapters of the text. (We'll cover much of the rest of the book in Math 334.)

### Student Evaluation

**Exams:** There will be 2 exams, given during the periods **February 21–23** and **March 14–16**. Each exam will be worth 30% of your total course grade. Arrangements for conflicts due to **University sponsored activities** must be made at least one week in advance.

**Attendance:** Attendance in this course is required, and will compose 5% of your grade. You will be allowed 2 absences (for any reason) without penalty. For each subsequent absence, you will lose one-half of a percentage point from your attendance grade. Note: arriving late to class or leaving early counts as one-half of a miss.

**Homework:** The only way to learn mathematics is to *do* mathematics. Homework will be assigned, usually (though not always) from the exercises at the end of the chapters.

**Projects:** In this course, you'll complete one major project. It is designed to complement your other work in the class, and will be scholarly in nature. You will research a topic associated with Geometry and present it both orally and in a poster. I'll give you lots more direction about the project shortly.

**Other Coursework:** Over the course of the semester, we'll have other interesting activities and assignments. On some days, we'll work in groups solving problems, and I may have you do a little bit of reading outside of class to give you different perspectives on the material.

In summary, your grade will be determined by the following:

2 exams (30% each)	60%
Attendance	5%
Project	10%
Homework, Quizzes, and other class assignments	25%
<hr/> Total	<hr/> 100%

**Grading Scale:** Grades in the course will be assigned according to the following approximate scale:

<b>A</b>	90	–	100%	of the course points
<b>B</b>	80	–	89%	
<b>C</b>	70	–	79%	
<b>D</b>	60	–	69%	
<b>F</b>	0	–	59%	

Intermediate grades (e.g. AB) will be assigned when a student is sufficiently close to the cutoff for the next highest grade.