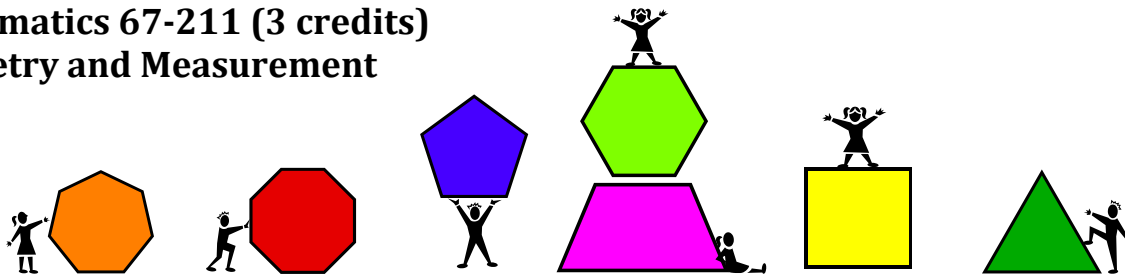


Mathematics 67-211 (3 credits) Geometry and Measurement



Prerequisite: A minimum grade of C in 67-110 *Number Systems* (or equivalent) is required.

Course Objectives: This course is designed to give you an **experience** in thinking mathematically. This means that you will solve problems, make conjectures, make arguments, and communicate your findings and ideas. It will also give you the opportunity to make sense of the mathematical thinking of others. The content of the course includes mathematical ideas that underlie the elementary school curriculum. This class is designed to 1) help you to understand the big ideas in Euclidean Geometry; 2) help you to understand children's thinking in the domains of geometry and measurement; 3) make you an experienced problem-solver; and 4) give you a profound appreciation for mathematics.

Instructor: Dr. Jennifer Szydlik

Office: 218 Swart; **Phone:** 424-7350; **email:** szydlik@uwosh.edu

Office Hours:

- Monday 11:30 – 12:30
- Tuesday 12:00 – 1:00
- Wednesday 12:40 – 1:40
- Other times by appointment. I'm happy to meet with you. In addition the Swart Math Lab is open 9:00 – 4:00 M-R, 9:00 – 2:00 Friday and Monday and Thursday evenings from 6:00 – 8:00. The lab has free, drop-in, peer tutors there to help you.

Textbook:

Seaman, C., Szydlik, J., & Kuennen, E. (2013). *Geometry and Measurement for Future Elementary Teachers*. This manual is available at the University Bookstore.

Course Outline:

Unit 1: Seeing the World Geometrically: (3 weeks) The language of geometry; the idea of conjecturing and arguing from axioms; angle measure; and exploring triangles and polygons.

Unit 2: Measurement in the Plane: (4 weeks) Using units, understanding length and area formulas; pi; and the Pythagorean Theorem.

Unit 3: The Third Dimension (4 weeks). The regular polyhedra; pyramids and prisms; and measuring surface area and volume.

Unit 3: Transformations (3 weeks): Translations, rotations and reflections; tessellations; and symmetry.

Format: Most class time will be spent solving interesting problems in small groups and discussing problem solving ideas and solutions as a class. Sometimes you will be asked to write up those ideas and solutions for me. Sometimes we will just discuss them. But **always** you are expected to think about the problems, participate in their solutions, and communicate your ideas with others. This format gives you the opportunity to practice skills you will need to be a teacher: listening and making sense of another people's mathematical ideas; explaining your ideas to others (both orally and in writing); understanding that people think about problems in many ways; and learning to help others understand mathematical ideas.

Grading: Your grade in this course will be based on:

- Attendance and participation (5%): It is very important that you are here to participate in solving the problems and contributing to the class discussion. You may miss two classes without penalty (for illness, prior commitments, religious observance, work or anything else you feel is important), and after that you will lose one percentage point of your course grade for each day missed (up to 5%) Coming late or leaving early will count as half a point.
- Written work (20%): This category will include daily HW checks, problem write-ups*, projects and quizzes.
- Three in-class exams (25% each): The dates of the exams are Friday, March 7; Wednesday, April 16th; and Friday, May 16th.

Grades will be kept on D2L. If you ever find an error, please let me know. The grading scale will be as follows (after rounding to the nearest percent):

A	93 - 100% of the course points
A-	90 - 92%
B+	87 - 89%
B	83 - 86%
B-	80 - 82%
C+	77 - 79%
C	73 - 76%
C-	70 - 72%
D	60 - 69%
F	0 - 59%

***Guidelines for Problem Write-ups:** Problem write-ups should be typed or written in ink and include the following four sections:

- 1) (3 pts) an explanation of the question or problem (Convince me you understand the question and define ambiguous terms or notation.)
- 2) (6 pts) a description of your problem-solving *strategies* (What did you do to work on the problem? Be specific. Include any data, tables, or sketches as appropriate)
- 3) (8 pts) the solution (what is the answer to the question(s)?), and
- 4) (8 pts) an explanation of the solution (Why does your solution make sense mathematically? Argue that it is complete (there are no other solutions) and prove it is correct.)