Geometry and Measurement
Math 226 Winter 2019

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Office: SAM, 228K	**Final Exam:** Section 1: Tuesday, 3/12, noon Section 2: Thursday, 3/14, noon
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Text: "Geometry and Measurement" course pack, available in the Wildcat Shop. Required.

Supplies: calculator, plenty of paper, *a GOOD compass, protractor*, ruler, colored pencils, 2 – 3 folders with pockets, binder (1 ½ inch should be sufficient)

Course Description: This course is an intuitive approach to the geometry topics relative to the elementary and middle school curriculum (and beyond). This is a CONTENT course. Prerequisite: Math 164

Course Rationale: According to the *Principles and Standards for School Mathematics* (2000), "Through the study of geometry, students will learn about geometric shapes and structures and how to analyze their characteristics and relationships. Spatial visualization – building and manipulating mental representations of two– and three–dimensional objects and perceiving an object from different perspectives – is an important aspect of geometric thinking. Geometry is a natural place for the development of students' reasoning and justification skills, culminating in work with proof in the secondary grades. Geometric modeling and spatial reasoning offer ways to interpret and describe physical environments and can be important tools in problem solving. … The notion of building understanding in geometry across the grades, from informal to more formal thinking, is consistent with the thinking of theorists and researchers." (p. 41)

Learner Outcomes for Process and Content Areas*:

Process Outcomes: The five process standards in this course are problem solving, mathematical reasoning, communicating mathematically, making connections, and representation. After completing this course, you will be able to:

Performance Outcomes
1. Problem Solving • define a problem; • use a variety of appropriate strategies to solve problems; • monitor and reflect on the problem solution and the process of mathematical problem solving.
2. Reasoning and Proof • make and investigate mathematical conjectures; • develop mathematical arguments or proofs.
3. Communication • organize and consolidate your mathematical thinking through communication; • communicate your mathematical thinking coherently and clearly; • use the language of mathematics to express mathematical ideas precisely.
4. Connections • recognize and use connections among mathematical ideas; • recognize and apply mathematics in contexts outside of mathematics.
5. Representation • create and use representations to organize, record, and communicate mathematical ideas; • select, apply, and translate among mathematical representations to solve problems.

Content Outcomes: The two content areas in this course are *Geometry* and *Measurement*. After completing this course, you will be able to:

Performance Outcomes
1. Geometry • analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships • specify locations and describe spatial relationships using coordinate geometry and other representational systems • apply transformations and use symmetry to analyze mathematical situations • use visualization, spatial reasoning, and geometric modeling to solve problems
2. Measurement • understand measurable attributes of objects and the units, systems, and processes of measurement • apply appropriate techniques, tools, and formulas to determine measurements

*Outcomes are adapted from the *Principles and Standards for School Mathematics* (NCTM, 2000).

Work and Assessment:

Please remember that organization, neatness, and legibility count! A variety of assessment methods will be used to determine your level of accomplishment in this course.

- All work will be put into one of two categories: **Minor and Major**
- Minor category work will be weighted at 40% and Major category work will be weighted at 60%.
- At the end of the quarter, I will drop ONE item from the Minor category. Nothing in the Major category will be dropped.
- *Because I allow a drop from the Minor category, I don't accept late work. Please do not ask me to accept or give an extension for work that you are not prepared to turn in on time. If you are going to be absent for any reason, turn the work in early or find someone to turn in your work for you. Do not email it to me.*

Minor Category (weighted 40%)

- Experience Paper see information sheet for details
- Course Reflection see information sheet for details
- Take Home Quizzes
- In Class Quizzes (these are generally unannounced attendance quizzes)
- Group Projects/Presentations
- Individual Projects
- Homework
    - Assigned from the course pack or extra handouts from class.
    - Homework will be collected regularly and graded for completion AND accuracy.
    - Specific details and expectations will be given in class regarding HW turn in.
- Activities
    - These are completed in class. If you don't finish in class, or are absent, expect to finish at home.
    - Activities will be collected regularly and graded for completion and accuracy.
    - Specific details and expectations will be given in class regarding Activity turn in.

Major Category (weighted 60%)

- Exams
  - You will have 2-3 exams and a comprehensive final (everyone takes the final).
  - No electronic devices are allowed on exams. Calculators OK (no phone calcs).
- *Note about Make up Exams*
  - Make up exams will be allowed only for extraordinary circumstances.
  - You may be given a different exam than what was given in class.
  - Make ups only considered if arranged with me *in advance* of your absence!

Grading Scale

93-100%	90-92.9%	87-89.9%	83-86.9%	80-82.9%	77-79.9%	73-76.9%	70-72.9%	67-69.9%	63-66.9%	60-62.9%	<60%
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Attendance and Professionalism:

- Please leave your phone in your bag during class time. Step out of the room if you have an important call/text/snap/etc to take care of during class. Remember no phone calculators.
- If you are to fully benefit from this class, you must attend class. As you prepare to become a teacher, you need to become accustomed to setting a good example for students. Attendance demonstrates professionalism and dedication.
- High quality work and organization demonstrate professionalism. The work you do while you are learning to be a teacher should start to look like the work you will do as a teacher.

Academic Honesty:

There are times when it is proper to get help from others and times when it is not. Feel free to ask others for help on homework, activities, and take-home quizzes. You can only learn how to do something new by doing it correctly. During in–class tests, you must do your own work. Academic dishonesty will not be tolerated.

Schedule:

I will keep you informed of the schedule and assignments and you can record them on the calendar I will hand out, or you can use your own method of organization.

Success:

To be successful, you must work hard and **be organized**. I encourage you to form study groups, take notes, and do your homework regularly. Seek help before you are in trouble and/or too far behind. Never hesitate to ask for help from me, your classmates, or anyone else who can help. I am here to help you be successful, so when you come to my office for help, make sure to bring your notes as well as the work you have done for class. If you need help, decide what you need help with and write it down. If you are working on a problem unsuccessfully, write down the approaches you have tried. Then seek help with your paper in hand. This allows me to help you more efficiently. Finally, after you successfully complete this course, do not let this be your last course in mathematics. After you join the ranks as a teacher take more courses, attend workshops, read professional journals, attend conferences, and network with other teachers. Successful teachers continually renew themselves.

Students with Disabilities:

Students who have special needs or disabilities that may affect their ability to access information or material presented in this course (including exams) are encouraged to contact me or Disability Services (ds@cwu.edu, 963-2214, Hogue 126).

Good Luck in this course! I hope you find it enjoyable and you leave with valuable resources for your future classroom.