

# MATH 455 - College Geometry II

Spring 2010

## General Information

Instructor(s): Mark Oursland

Meeting Time: M,T,W,Th 1:00-1:50 PM

Office: Bouillon 107B

Location: M,W, F Black 201

Phone: 963-2100

Office Hours: Dr. Oursland: M-F 9:00-10:00AM

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## Course Description

This course is the second of a two-course sequence. It mixes the basic principles of geometry with concept connection to other disciplines. The axiomatic systems of Euclidean, Hyperbolic, and Elliptical Geometry will be studied as well as the models of these geometries. Connections to trigonometry and transformational geometry will be studied and applied to real world problems. The underlying theme will be to model both processes and content of mathematics studies of geometry as they directly apply to the secondary mathematics classroom.

## Prerequisites

The prerequisite is MATH 355.

## Course Rationale

Geometry is a basic part of the high school curriculum and the NCTM recommended that "Prospective teachers need mathematics courses develop a deep understanding of the mathematics they will teach". This course will begin with high school geometry and make deep connection to all areas of mathematics. This course will also develop a deep understanding of when and how to use proof to communicate understanding of mathematical concepts.

## Required Course Materials

- Blackboard account with enrollment in MATH 355
- Compass and straight edge
- Textbook: Foundations of Geometry by Gerard Venema

**Learner Outcomes and Assessment:** By the end of the course, students will:

Outcomes	Assessment
be able to define geometric concepts critical to the intuitive and logical development of geometry.	Daily assignments, written problem solutions, presentations, bi-weekly exams, project papers, and final exam.
be able to construct geometric figures using multiple technologies and methods, including those classical straight edge and compass techniques.	Daily assignments, written problem solutions, presentations, bi-weekly exams, project papers, and final exam.
be able to conjecture, prove, give counterexamples, and evaluate conjectures, proofs, and counterexamples for correctness, elegance, and utility.	Daily assignments, written problem solutions, presentations, bi-weekly exams, project papers, and final exam.
be able to make connections among geometry, other areas of mathematics, real world phenomena, and science.	Daily assignments, written problem solutions, presentations, bi-weekly exams, project papers, and final exam.
contribute to the class knowledge base in a professional manner that includes preparation, courtesy, and respect for others.	Daily assignments and presentations
be able to communicate geometric and pedagogical ideas with others in a clear and concise manner, properly using the language of mathematics, specifically, and geometry.	Daily assignments, written problem solutions, presentations, and project papers.
be able to solve problems using the geometric concepts from Euclidean, Hyperbolic, and Elliptical Geometry	Daily assignments, written problem solutions, presentations, bi-weekly exams, project papers, and final exam.

The instructional and assessment strategies for this course are designed to inform you of your progress in achieving the performance outcomes. The instructors will give you feedback on your progress in meeting performance outcomes.

Participation in class and completion of daily assignments (10 points each two weeks)	50
Written problem solutions (5 points each)	50
Presentation of assigned problem (10 points each)	20
Tri-weekly Exam (50 points each)	150
Project Paper (20 point each)	60
Final Comprehensive Exam (100 points)	100
Total Points	480

## Grading Scale

93-100% (A), 90-92.9% (A-), 87-89.9% (B+), 83-86.9% (B), 80-82.9% (B-), 77-79.9% (C+), 73-76.9% (C), 70-72.9% (C-), 67-69.9% (D+), 63-66.9% (D), 60-62.9% (D-) and 0-59.9% (F). Please see the CWU Catalog for the eligibility requirements for an incomplete (I).

## Performance Expectations

### Professionalism

You need to do your assignments and come to class prepared to contribute to the knowledge base of the class. If you do not show up, are not prepared, or do not participate you are not acting as a professional mathematics educator. If you are going to miss class you must find out what your assignment is complete the assignment or at least have it done by the time you return. If you do not follow this pattern of conduct will not get credit for late work. Many times this will mean getting help from you classmate and instructor if you have missed class or are having trouble with some concepts in class.

### Schedule

The class calendar is tentative due to subject to change, but will be our tentative guideline for the course. If you miss a class, it is your responsibility to find out what was covered, announced, or assigned. In case of emergencies, it is your responsibility to contact the instructors as soon as possible. If a course deadline was missed, assessment alternatives are left up to the discretion of the instructors.

### Suggestions for Success

Take responsibility for your own achievement. If you have questions regarding any assignment, ask the instructors. Communicate frequently.

## ADA Statement

Students with special needs or disabilities who desire academic accommodation are encouraged to submit a copy of the 'Confirmation of Eligibility for Academic Adjustments' from the Disability Support Services office as soon as possible so a plan can be developed that best serves the learning needs of the student. Students without this form should contact the Disability Support Services office in Bouillon 205 at 963-2171 or [dssrecept@cwu.edu](mailto:dssrecept@cwu.edu) as soon as possible.

## Tentative Schedule

Week	Topics	Assignment
March 29	Chapter 7	Problem Write Up and Presentations
April 5	Chapter 7	Problem Write Up, Presentations, and Project Paper.
April 12	Chapter 7	Problem Write Up, Exam, and Presentations
April 19	Chapter 10	
April 26	Chapter 12	Problem Write Up and Presentations
May 3	Chapter 12	Problem Write Up, Presentations,

		and Project Paper.
May 10	Chapter 9	Problem Write Up, Exam, and Presentations
May 17	Chapter 9	Problem Write Up and Presentations
May 24	Chapter 9	Problem Write Up, Presentations, and Project Paper.
May 31	Chapter 13	Problem Write Up, Exam, and Presentations
June 8	<b>Complete All Coursework</b>	Final Exam