Instructor:	Dr. Chris Black
Office:	Snoqualmie Hall #302B
Office Hours:	M 2:00 - 3:00, Th 10:15 - 11:45, and by arrangement
Office Phone:	x3871
Email :	blackc@cwu.edu

Required Text:	*Roads to Geometry*, 3rd edition, Edward C. Wallace & Stephen F. West, Prentice-Hall, 2004

Required Materials:	Straight-edge and compass. Access to Geometer's Sketchpad is recommended.

Course Philosophy:

The preface to our text says it best: "The goal of this [course] is to provide a geometric experience that clarifies, extends, and unifies concepts that are generally discussed in traditional high school geometry courses and to present additional topics which assist in gaining a better understanding of elementary geometry." We will discuss axiomatic systems, and then look deeply into the "normal" geometry developed in ancient Egypt, Babylon, and Greece, recorded by Euclid around 300 BCE, debated and analyzed throughout history, and modernized by Hilbert, Birkhoff and others in the early 20th century. We will continue our study of geometries in Math 455 by considering modern geometries, such as finite and non-Euclidean geometries. As the content of this course is as much philosophical as it is mathematical, you will find reading your text to be immensely helpful.

Goals for course:

Math 355 students will:

- ...further develop facility with proof based on a given set of axioms, within the confines of Euclidean geometry.

- ...use the software package *Geometer's Sketchpad* to illustrate results from Euclidean geometry and to investigate properties of geometry in the plane.

- ...use a straight-edge and compass to carry out basic constructions, leading to a study of constructible numbers and historical construction problems.

- ...be able to describe geometric transformations using algebraic language.

Probable Course Topics:

- ▷ A brief historical development of Euclidean geometry.

- ▷ Different axiomatic approaches to Euclidean geometry

- ▷ Euclidean results concerning congruence, area, circles & triangles

- ▷ Compass and straightedge constructions

- ▷ Geometric and analytic transformations of the plane

GRADING:

Homework:	320 - 360 points, as needed
Labs:	64 points (2 at 32 pts. each)
Take-Home Exams:	150 (1 at 50 pts, 1 at 100 pts)
Final Exam:	100 points
Participation:	15 points
Attendance/Citizenship:	15 points

HOMEWORK & LABS:

The homework sheet will specify a number of problems, only selected ones of which will be collected and graded. You may work with other students to solve individual problems, but solutions to problems must be written up individually. As always, you (individually, or in a group) are invited to come see me for hints on homework problems if you get stuck. Homework problems may be rewritten **one time** if resubmitted within one week of being returned to you.

We will spend 3 class periods in the computer lab, using Geometer's Sketchpad to explore Euclidean geometry in the plane. Two of these three lab periods will culminate in exploratory lab reports, worth 20 points each. Lab reports cannot be rewritten.

PARTICIPATION:

We will spend a portion of some class sessions working in small groups, and I will often ask students to present their work at the board. Your participation will be graded based on your interactions with your peers, your activity level and focus during class, and how often you volunteer to present your solutions.

ATTENDANCE/CITIZENSHIP:

Discussion, interaction, and group problem solving will all be important aspects of this course, which necessitate your attendance. Citizenship addresses your behavior and comportment with class members and the instructor. We each need to be respectful of other students, other cultures, and differing ideas within our learning community.

HONOR AND RESPECT:

Each of us should consider our placement at this institution to be a privilege. We need to have respect for one another, and for ourselves. In light of these facts, cheating in any form will not be tolerated. You are encouraged to work together on homework problems, however anything you turn in with your name on it should have been written by you alone (or with members of your assigned group). In a course where much of your grade is determined by your proof writing and take-home exams, plagiarism is a concern. The word "plagiarize" is defined by Merriam-Webster as "to steal and pass off (the ideas or words of another) as one's own: use (another's production) without crediting the source." This is a very serious offense.

DISABILITY SERVICES:

Students with disabilities may arrange for academic adjustments by providing the instructor with a copy of the "Confirmation of Eligibility for Academic Adjustments" from the Disability Support Services Office as soon as possible. To obtain this form, contact the Disability Support Services Office at the main campus at dssrecept@cwu.edu or (509) 963-2171.