

SU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
 SYLLABUS (*Tentative*)
 MATH 406/516 *Geometric Structures*

Objectives: This course focuses on Euclidean and Non-Euclidean geometry with an emphasis on students' abilities to construct proofs and communicate mathematics verbally. Two further goals of the class are to have the students develop self-reliance in the study of geometry and develop an appreciation for the role of geometry in history and culture.

Intended Audience: This course is intended for prospective mathematics teachers and mathematics majors.

Prerequisites: MATH 210 and some experience writing proofs.

Text: "Roads to Geometry," by Wallace and West," Pearson, 3rd edition, 2004.

<i>Topics</i>	<i>Weeks</i>
<i>Geometry Through the Ages</i>	1-2
Greek Geometry, Euclid, Neutral Geometry, Famous Problems	
<i>Topics in Euclidean Geometry</i>	2-3
Constructions, Axiom Systems, Formal Geometric Proof	
<i>Other Geometries</i>	2-3
Parallelism, Hyperbolic Space	
<i>Transformational Geometry</i>	2-3
Analytic Model of the Euclidean Plane, Linear Transformations of the Plane	
<i>Projective Geometry</i>	2
Perspective and Projective Geometry, The Cross Ratio	
<i>Tests and Optional Topics</i>	1-3
Fractal Geometry, Other Geometries	

EVALUATION

Projects, Presentations, Homework	25%
Tests (2 or 3) and Final Exam	75%

Graduate students will be assigned special homework/test problems or projects.

NOTE: Once a student has received credit, including transfer credit, for a course, credit may not be received for any course with material that is equivalent to it or is a prerequisite for it.