

# MATH 61 OUTLINE

## PLANE GEOMETRY

TEXT: Essentials of Geometry, 2nd Ed. Lial/Brown/Steffensen/Johnson

Approved: May 2006

Effective: Fall 2006

MATERIAL TO BE COVERED	SECTIONS FROM TEXT	TIME LINE
<b>Introduction to logic.</b> Truth tables, inductive and deductive reasoning, valid arguments, symbolic logic	Appendix D, 1.1	4 Hours
<b>Foundations of geometry.</b> Points, planes and lines. Segments, rays and angles. Introduction to deductive proofs, formal geometric proofs, construction of lines and angles	1.2 - 1.6	4 Hours
<b>Triangles.</b> Classify triangles, congruent triangles, proofs involving congruence, isosceles triangles, concurrent lines, proving right triangles congruent, construction of triangles.	2.1 - 2.5	5 Hours
<b>Parallels lines and polygons.</b> Indirect proof, parallel postulate, transversals and angles, polygons and angles, more congruent triangles	3.1 - 3.4	4 Hours
<b>Quadrilaterals.</b> Properties and proofs involving a parallelogram, rhombus, kite, rectangles, square and trapezoid.	4.1 - 4.4	5.5 Hours
<b>Similar polygons and the pythagorean theorem.</b> Ratios and proportions, similar polygons, properties of right triangles, the Pythagorean Theorem, inequalities involving triangles (optional)	5.1 - 5.4    Optional: 5.5	4.5 Hours
<b>Circles.</b> Circles and arcs, chords and secants, tangents, circles and regular polygons, inequalities in circles (optional), locus of points	6.1 - 6.4 & 6.6 Optional: 6.5	5 Hours
<b>Area of polygons and circles.</b> Area of quadrilaterals, circumference and area of a circle, area and arc length of a sector, area of regular polygons	7.1 - 7.4	3 Hours
<b>Surfaces and solids.</b> Planes and polyhedrons, prisms, pyramids, cylinders and cones	8.1 - 8.4	2.5 Hours
<b>Analytic geometry</b> (optional). Cartesian coordinate plane, distance and midpoint formulas, slope, equations of lines. <b>Trigonometry</b> (optional): trigonometric ratios, solving right triangles.	9.1 & 9.2    10.1 & 10.3	

\*\*\* One hour = 1 hour of face time. \*\*\*\*This outline allows for 4 hours of exams. 1 hour for optional topics.  
16 Week Term: 1 week = 2.8333 hours (face time)    6 Week Term: 1 week = 7.5 hours (face time)

**NOTES:**

Students should receive an introduction to an axiomatic system and to deductive reasoning skills. Proofs should be an important part of this course. Students should know the facts of geometry and be able to show evidence on tests of being able to write both formal and informal proofs. Geometer's Sketchpad is recommended for use as a valuable tool to assist with presentation of the material and for student projects.

**\*\* See reverse side for important Department Policy\*\***

Submitted by: Birca, Franko, Summers, Troxell