Math 161 Tentative Syllabus

Text: *Geometry with Geometry Explorer*, M. Hvidsten, 2012.

Lecture	Section	Topic
1	1.1, 1.2	Introduction to Geometry
2	1.4, 1.5	Axiomatic Method, Properties of Axiomatic Systems
3	1.6	Euclid's Axiomatic Geometry
4	2.1	Angles, Lines and Parallels
5	2.2	Congruent Triangles and Pasch's Axiom
6	2.4, 2.5	Measurement and Area in Euclidean Geometry, Similar Triangles
7	2.4, 2.5 (cont)	Measurement and Area in Euclidean Geometry, Similar Triangles
8	2.6	Circle Geometry
9	3.1, 3.2	Cartesian Coordinate System, Vector Geometry
10	3.4	Angles in Coordinate Geometry
11	3.5	The Complex Plane
12	3.6	Birkhoff's Axiomatic System and Review
13	4.1	Euclidean Constructions
14	5.1	Euclidean Isometries
15	---	**Midterm**
16	7.1	Background and History of Non-Euclidean Geometry
17	7.2	Models of Hyperbolic Geometry
18	7.3	Basic Results in Hyperbolic Geometry
19	7.3	cont.
20	7.4	Saccheri Quadrilateral
21	7.5	Lambert Quadrilateral and triangles
22	7.6	Area in Hyperbolic Geometry
23	7.8	Models and Isomorphism
24	8.1	Mobius Transformations
25	8.2	Isometries in the Poincare Model
26	8.3	Isometries in the Klein Model
27	9.1,9.2	Search for "natural" geometry, self-similarity

28	9.2	Sierpinski's Triangle and the Cantor set
29	---	Review

* Note: This is a tentative syllabus. Depending on the pace of the course, some sections may be omitted.