September 2009

Course Outline for Math 324

Required Texts:

- Schaum's Outline: Geometry, 4th edition, McGraw Hill Publishers
- Taxicab Geometry, Dover Publishers
- College Geometry using the Geometer's Sketchpad, Key Curriculum Press Publishers

Chapter Outline:

- Chapter 2, Methods of Proof
  - Add reasoning/logic, converse, contrapositive
- Chapter 3, Congruent Triangles
- Chapter 4, Parallel Lines, Distances, and Angle Sums
- Chapter 5, Parallelograms, Trapezoids, Medians, and midpoints
- Chapter 6, Circles
- Chapter 7, Areas
- Chapter 10, regular Polygons
- Chapter 17, Solid Geometry
- Advanced Euclidean Geometry
  - Ceva's Theorem
  - Ptolemy's Theorem
  - Menelaus' Theorem
  - Stewart's Theorem
  - Proofs of Pythagorean Theorem and its Converse
  - Brahmagupta's and Heron's Formulas
  - Golden Rectangle and Golden Triangle
- Analytic Geometry
- Transformational Geometry
- Non Euclidean Geometry
  - Taxicab Geometry
  - Spherical Geometry
  - Hyperbolic Geometry

Optional Topics:

- Matrix representations of transformations
- Transformations in the complex plane
- Fractals