

MATH 5200/7200, Foundations of Geometry, Fall 2008  
Clint McCrory, 8/1/08 (revised 10/25/08)

A. Introduction: Geometer's Sketchpad, constructions, proofs

- Week 1 (M 8/18, W 8/20, F 8/22)
  - GSP experiments: triangles and circles
  - Measurement: distance, angle, area
- Week 2 (M 8/25, W 8/27, F 8/29)
  - Ratios and similarity
  - Pythagorean Theorem
- Week 3 (W 9/3, F 9/5)
  - Golden ratio, pentagon
  - Constructions, regular polygons
- Week 4 (M 9/8, W 9/10, F 9/12)
  - Methods of proof
- Week 5 (M 9/15, W 9/17, F 9/19)
  - Review, Exam 1 (Friday, September 19)

B. Axioms and basic theorems of plane geometry

- Week 6 (M 9/22, W 9/24, F 9/26)
  - Basic theorems: isosceles, similar, and congruent triangles; parallel lines
  - Properties of circles
- Week 7 (M 9/29, W 10/1, F 10/3)
  - Axioms: distance, line, angle, between, congruence, parallel, area
  - From axioms to basic theorems
- Week 8 (M 10/6, W 10/8, F 10/10)
  - Proofs of basic theorems
- Week 9 (M 10/13, W 10/15, F 10/17)
  - Applications of basic theorems
- Week 10 (M 10/20, W 10/22)
  - Review, Exam 2 (Wednesday, October 22)

C. Trigonometry, non-Euclidean geometry

- Week 11 (F 10/24, M 10/27, W 10/29)
  - Definition of sine and cosine, trig identities
  - Applications of trigonometry
- Week 12 (M 11/3, W 11/5, F 11/7)
  - Proofs using trigonometry
  - Introduction to non-Euclidean geometry
- Week 13 (M 11/10, W 11/12, F 11/14)
  - Elliptic and hyperbolic geometry
- Week 14 (M 11/17, W 11/19, F 11/21)
  - Elliptic and hyperbolic trigonometry
- Week 15 (M 12/1, W 12/3)
  - Review, Exam 3 (Wednesday, December 3)

D. Reports

- Week 16 (F 12/5, M 12/8, Tu 12/9)
  - Project reports

FINAL EXAM: Friday, December 12, 12:00-3:00 pm