Math 3120: Introduction to Geometry
University of Virginia’s College at Wise. Department of Mathematics and Computer Science. Spring 2010.

BASIC INFORMATION

Class meetings: Mon, Wed, Fri 2:00-2:50 (3 credit hours), Darden Hall 114
Instructor: Dr. Matthew Harvey
Office: Darden Hall 235
Office phone: 276-376-4571
Office hours:
• Monday 9:00-11:00
• Tuesday 9:30-11:00, 2:00-3:00
• Wednesday 10:00-12:00, 3:00-4:00
• Thursday 9:30-11:00, 2:00-3:00
• Friday 9:00-11:00
Email: msh3e@uvawise.edu
Web: www.mcs.uvawise.edu/msh3e/

COURSE DESCRIPTION

The prerequisite for this course is successful completion of Math 3100 with a grade of C or better or permission of the instructor.

The purpose of this class is to provide a modern perspective on Euclidean and non-Euclidean geometries. We will begin the course with a study of neutral geometry, with an emphasis on a proper and careful development of the subject following the axioms of Hilbert. Then we will move on to selected topics in Euclidean geometry—similarity, the Inscribed Angle Theorem, and some of the triangle concurrence theorems to name a few. During this part of the course, we will use compass and straight-edge constructions extensively to illustrate the results. Finally we will take a look at hyperbolic geometry using the Poincare disk as our model for this geometry. By the end of the course, you should understand what an axiomatic system is and you should be able to prove results in such a system; you should understand some of the key similarities and differences between Euclidean and hyperbolic geometry; you should be aware of a few of the more advanced theorems of Euclidean geometry; and you should be able to perform basic calculations in hyperbolic geometry.

The textbook for this course is Euclidean and Non-Euclidean Geometries: Development and History, 4th ed., by Marvin Jay Greenberg.

THE EVERYDAY CLASS

Your presence in class is expected. In class, you are expected to pay attention and contribute. At the very least, you not be a distraction to your fellow classmates. Please turn off electronic devices, including cell phones, MP3 players, and the like. Disruptive behavior will not be tolerated. If I feel that you are a distraction to the rest of the class, I will ask you to leave.

GRADES

Homework is an important component of this course and something you should take seriously. Homework will be assigned and collected regularly. Your work should be neat, organized, and well thought out.

• You are allowed to collaborate with classmates on the homework, but you must turn in your own work. Collaboration means working together to solve the problems—copying will not be accepted.
• Your work should be neat, well-organized, and stapled. Answers should be clear and well-reasoned.
• You may receive partial credit for good work even if you do not arrive at the correct an-
swer. By itself, a correct final answer without proper explanation may not be worth full credit.

During the semester there will be three in-class tests. These are tentatively scheduled for: February 8, March 5, and April 21. A typical test will consist of between 10 and 20 questions– a mix of definitions, short answer problems, and proofs.

- No make-up exams will be given unless you can present a valid documented excuse. In this case, you will either take a make-up exam or be given a grade based on other assignments, whichever I feel is more appropriate.
- Your final exam grade may be used to replace your lowest test grade.
- At the end of the semester you will have a comprehensive final exam.

- Course grades will be assigned according to these percentages:
  - homework & quizzes: 35%
  - tests: 40%
  - final exam: 25%

If you need course adaptations or academic adjustments because of a documented disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment to talk with me as soon as possible.

CHEATING

Cheating will not be tolerated. Any student caught cheating will be reported to the Honor Court. A student who is convicted will receive an F for the course.