Math 475 Fundamental Concepts of Geometry, Fall 2016

Basic Info:

- Meeting Times/Locations
  - Section 0001, MWF Burruss Hall room 034, 12:20–1:10
- Instructor: Dr. Joshua Ducey
- Email: duceyje@jmu.edu
- Website: http://educ.jmu.edu/∼duceyje
- Office Location: Roop 339
- Office Hours:
  - Monday 11:00–12:05
  - Wednesday 10:10–11:00
  - Thursday 12:30–1:45
  - By appointment
- Book: 'Exploring Geometry', by Hvidsten. Available at: `http://educ.jmu.edu/~duceyje/fa16/475/book.pdf`
- Other Materials:
  - We will be using the software 'Geometry Explorer', available at `http://homepages.gac.edu/~hvidsten/gex/`.
  - You will also need a means to nicely typeset your mathematical arguments. I strongly recommend LaTeX.

Course Goals and Content:
We will cover topics in geometry, including historical development and progression and the foundation shaking discovery of non-Euclidean geometries. The axiomatic system will play an important role, as it is ubiquitous in modern mathematics (consider the axioms of a group, for example). The possibility of certain geometric constructions will be discussed in a sophisticated manner, and mathematical proof will play a central role in the course. The student will learn how the use of proof is illuminating to the intuition, not an impediment. The students will have a deep understanding of what geometry is; including

an appreciation for Klein's unifying 'Erlanger Programm' that defines geometry to be the study of properties of a spaces that are invariant under the action of a particular group. It is the instructor's hope that the knowledge and skills you gain from this course will serve you well in the rest of your undergraduate program and far beyond.

Homework and Quizzes:
Homework will be assigned frequently. I may assign some problems that I may call upon you to present in class–you will know about these problems in advance. Most of the assigned problems will be uncollected, but it is of the utmost importance that you diligently complete them and understand them. Quizzes will be given approximately weekly and will problems of a similar nature to those assigned.

Weekly Projects:
You will be assigned projects approximately weekly that you will write a report on. Expect to spend about one day considering and completing the exploration part of the project, including the exercises. Allow several days to write your report on the project. The project grade will depend on both mathematical correctness and style of presentation.

Exams and Final Project:
There will be two midterm exams given in-class. A final project or exam will be given–the details will be announced later in the course.

Getting Help:
You are welcome and encouraged to seek help from me at anytime. You are encouraged to discuss the reading and homework exercises with your classmates. However, anything that you turn in to me for a grade should be strictly a product of your own effort and creativity. The projects should be done on your own, and I fully expect that no two projects will look even similar. Never share your Latex code with anyone. The JMU honor code will be fully enforced. If you have any questions about this policy you should ask me.

Evaluation:
Projects: 20%
Quizzes: 10%
Participation/Preparedness: 10%
Two Exams: 40%
Final Project: 20%

Grade Scale:
$[90-100]$ A- to A
$[80-90)$ B- to B+
$[70-80)$ C- to C+
$[60-70)$ D- to D+
$[0-60)$ F

Final Exam Time:
Friday 12/16/2015, 10:30-12:30

General University Policy: www.jmu.edu/syllabus