MATH 2360Q-003: Geometry
Spring 2015

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Office: MSB 412
Office hours: M/W/F 9am--10am (or by appointment).
Class meeting times & place: Monday / Wednesday / Friday 11:15 – 12:05 MSB 415

Textbook: *Foundations of Geometry* by Gerard Venema (2nd edition)

Course description:
A fresh look at geometry, old and new. Euclidean and non-Euclidean geometries are examined from different perspectives. Topics may include symmetries, the role of the parallel postulate and some topics from 19th and 20th century geometry, e.g. fractals and knots.

Homework:
Homework assignments for each section of the textbook may be found in the syllabus below. Homework for each week will be collected each **Friday**. Late submissions will not be accepted.

Grading:
Homework 20%
Midterm exams 25% each
Final exam 30%

Exam schedule:
Exam 1 Friday 06th Mar. (in class).
Exam 2 Friday 10th Apr. (in class).
Final TBA.

Calculators:
You will need to show your work on exams and quizzes, but may use calculators to check your answers, etc. Something equivalent to a TI-83 is fine, whereas something like a TI-89 is too much.

Academic integrity:
From the University of Connecticut student code: A fundamental tenet of all educational institutions is academic honesty; academic work depends upon respect for and acknowledgment of the research and ideas of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned.

Students Needing Special Accommodations:
You should inform me as soon as possible of your commitments as an athlete, or of any special needs that you have, etc. This is your responsibility. You will expected to bring in a letter from the Athletics Department or the Center for Students with Disabilities.
If you anticipate a conflict due to a religious observance you must contact me in writing within the first three weeks of the semester, and prior to the anticipated absence. We will work together to prepare a schedule for making up missed work. For conflicts with final examinations, students should, as usual, contact the Office of Student Services and Advocacy.

Exam conflicts:
Mid-term exams
You are expected to take the midterms on the days they are scheduled. A make-up for a missed

midterm will not be given unless you provide a valid, officially documented excuse (e.g. medical, athletic, etc.). I will contact the involved parties/organizations and verify the excuse before the make-up will be allowed. If you satisfy those requirements, there is a one-week time limit from the original date of the exam to make it up. After that time window has passed, no make-up will be permitted. Due to extra study time, make-up exams will be more difficult than the original, so it is to your benefit to not miss the exams on their scheduled dates.

Final exams

There are no make-ups if you miss the final exam. If you have conflicts with the final exam time/day (e.g. 3 or more exams on the same day), you need to let me know well in advance and secure permission to reschedule from the Office of Student Services, who will contact me directly. I will not allow a rescheduled final exam unless I receive an official request from the OSS. The acceptable reasons for requesting a rescheduled final exam can be found at the registrar's website.

UConn Q Center:

The UConn Q Center is a source of extra help for students studying Q courses. They provide free drop-in tutoring (check their website for times and locations) and they also maintain a list of private tutors.

Course syllabus:

The following syllabus is tentative; the pace at which I cover material will depend a little on feedback from students. I will update this page if there are any major revisions to the syllabus during the semester.

Section(s)	**Homework**
Monday 19th January: Dr. Martin Luther King Jr. Day (no class).	
1.1--1.6 (Euclid)	Homework 1 (due Friday 30th January)
2.1--2.2 (Incidence geometry)	
2.3 (The parallel postulates in incidence geometry)	
2.5 (Theorems, proof and logic)	Homework 2 (due Friday 6th February)
2.6 (Some theorems from incidence geometry)	Homework 3 (due Friday 20th February)
3.1 (The undefined terms and two fundamental axioms)	
3.2 (Distance and the Ruler Postulate)	Homework 4 (due Friday 27th February)
3.3 (Plane separation)	
3.4 (Angle measure and the Protractor Postulate)	Homework 5 (due Friday 6th March)
3.5 (The Crossbar Theorem and the Linear Pair Theorem)	
3.6 (The Side-Angle-Side Postulate)	Homework 6 (due Friday 27th March)
3.7 (The parallel postulates and models)	
4.1 (The Exterior Angle Theorem and existence of perpendiculars)	
4.2 (Triangle congruence conditions)	
4.3 (Three inequalities for triangles)	Homework 7 (due Friday 3rd April)
4.4 (The Alternate Interior Angles Theorem)	
Exam 1	

4.5 (The Saccheri-Legendre Theorem)
4.6 (Quadrilaterals)
4.7 (Statements equivalent to the Euclidean Parallel Postulate)
4.8 (Rectangles and defect)
4.9 (The Universal Hyperbolic Theorem)
5.1--5.2 (Basic theorems of Euclidean geometry; The Parallel Projection Theorem)
Spring break (Monday 16th March -- Friday 21st March)
5.3--5.4 (Similar triangles; The Pythagorean Theorem)
5.5--5.6 (Trigonometry; Exploring the Euclidean geometry of the triangle)
6.1 (Basic theorems of hyperbolic geometry)
6.2 (Common perpendiculars)
6.3 (The angle of parallelism)
6.4 (Limiting parallel rays)
6.5 (Asymptotic triangles)
6.6 (The classification of parallels)
Exam 2
6.7 (Properties of the critical function)
6.8 (The defect of a triangle)
7.1 (The Neutral Area Postulate)
7.2 (Area in Euclidean geometry)
7.3 (Dissection theory)
7.6 (Area and defect in hyperbolic geometry)
11.1 (The Cartesian model for Euclidean geometry)
11.2 (The Poincare disk model for hyperbolic geometry)
11.3 (Other models for hyperbolic geometry)
Final exam