

EUCLIDEAN AND NON-EUCLIDEAN GEOMETRY
MATHEMATICS 439 SECTION 1
CRN 70267

INSTRUCTOR	Matt Roscoe Office: Math 213 Phone: (406) 243-6689 or (406) 203-2112 Email: matt.roscoe@umontana.edu
WEBPAGE	https://moodle.unt.edu/
OUTCOMES	Upon completion of this course, a student will be able to: 1. To construct mathematical proofs using the axioms and theorems of Euclidean geometry, 2. To explore, conjecture, and prove mathematical ideas and theorems, 3. To develop a facility with geometric theorems and proofs, through hands on exploration, and, 4. To understand different geometries and their development through comparisons of their axioms, and the validity of basic theorems in different geometries.
TEXT	Venema, G. A. (2013) <i>Exploring Advanced Euclidean Geometry with GeoGebra</i> . Washington DC: Mathematical Associate of America (Print Edition ISBN 978-0-88385-784-7) (Electronic Edition ISBN 987-1-61444-111-3)
GRADING	20% GeoGebra Exercises 20% Proof Exercises 20% Midterm Exam 1 20% Midterm Exam 2 20% Final Exam
GRADE SCALE	Let S be your final score in the course then, $93 \leq S < 100 \Rightarrow A$ $90 \leq S < 93 \Rightarrow A-$ $87 \leq S < 90 \Rightarrow B+$ $83 \leq S < 87 \Rightarrow B$ $80 \leq S < 83 \Rightarrow B-$ $75 \leq S < 80 \Rightarrow C+$ $70 \leq S < 75 \Rightarrow C$ $65 \leq S < 70 \Rightarrow C-$ $62 \leq S < 65 \Rightarrow D+$ $58 \leq S < 62 \Rightarrow D$ $55 \leq S < 58 \Rightarrow D-$ $0 \leq S < 55 \Rightarrow F$

GEOGEBRA EXERCISES

The text for the course takes an inquiry-based learning approach to geometry using the dynamic geometry system called GeoGebra. In lieu of lecture, the core activity in the course will be the construction and investigation of geometric objects. Exercises that are meant to be conducted in GeoGebra are indicated with an asterisk in the text. You should keep an electronic portfolio of all the GeoGebra Exercises that you complete in the course. Activities should be named using the naming convention:

last-first-chapternumber-sectionnumber-exercisenum.

For example, my results of exercise 2.4.3 would be named

roscoe-matt-2-4-3.

I will periodically collect a subset of activities which will be handed in via upload to the electronic assignment collection system on our course website.

PROOF EXERCISES

While many exercises in the text call for GeoGebra constructions, others ask the student to use intuition gained from these constructions to develop formal mathematical proofs. Some of these proof exercises will be assigned as written homework. Homework has to be turned in by 4PM on the due date. If you cannot hand it in on time for a “really good” reason, contact me, and I may be able to give you an extension. If I receive too many extension requests, I will have to change my policy and only grant extensions in cases of documented illness or other exceptional circumstances beyond your control. I encourage collaboration - by that I mean *working together* to solve problems, not simply copying the work of others. I require, however, the following:

1. You always have to write up your solutions in your own words,
2. You must indicate with whom you worked to solve the problem, and,
3. You are not permitted to use the internet as a solution resource.

Only a subset of the homework assigned will be collected for grading. Solutions to all the problems assigned will be posted on the course webpage on the day that the homework is collected. Because of this arrangement, you are asked to start your work for each homework problem on a new piece of loose-leaf paper. Problems collected for grading will be assessed using a 4-point rubric that I will provide.

MID-SEMESTER EXAMS

There will be 2 mid-semester exams. Exams will be closed book. One page of notes will be allowed. Each exam will consist of 5 problems. Three problems are to be completed in class. Two problems can be taken home and handed in at the next class meeting. Problems on the mid-semester exam will be similar to those assigned in the previous weeks' homework.

FINAL EXAM	The cumulative final exam will be held Friday, November 20 from 8:00-10:00AM. The final exam will be closed book. Two pages of notes will be allowed. The final exam will consist of 10 problems. Six problems are to be completed in class. Four problems can be taken home and handed in by the end of the finals testing period. Problems on the final exam will be similar to those assigned in the homework across the semester.
HONESTY	All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at http://life.umt.edu/vpsa/student_conduct.php .
ACCOMMODATION	The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and Disability Services for Students (DSS). If you think that you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommassen 154. I will work with you and DSS to provide an appropriate accommodation.
DIGITAL ACCESS	Digital devices are becoming increasingly important to success in college. In this course, you will need a digital device to access readings, complete and submit written assignments, complete online quizzes, verify your attendance, take in-class polls, coordinate with other students regarding group projects, complete and submit group projects. I recognize that some students are unable to afford the cost of purchasing digital devices and that other students rely on older, more problem-prone devices that frequently break down or become unusable. I also recognize that those technology problems can be a significant source of stress for students. Given those challenges, I encourage students to contact me if they experience a technology-related problem that interferes with their work in this course. This will enable me to assist students in accessing support.

SEMESTER SCHEDULE

Monday	Wednesday	Friday
	19-Aug Introduction and CH0	21-Aug CH0
24-Aug CH0	26-Aug CH1	28-Aug CH1
31-Aug CH2	2-Sep CH2	4-Sep CH2
7-Sep Labor Day	9-Sep CH3	11-Sep CH3
14-Sep CH3	16-Sep CH4	18-Sep CH4
21-Sep CH4	23-Sep Review	25-Sep EXAM 1
28-Sep CH5	30-Sep CH5	2-Oct CH5
5-Oct CH6	7-Oct CH6	9-Oct CH6
12-Oct CH7	14-Oct CH7	16-Oct CH7
19-Oct CH8	21-Oct CH8	23-Oct CH8
26-Oct Review	28-Oct Exam 2	30-Oct CH13
2-Nov CH13	4-Nov CH13	6-Nov CH14
9-Nov CH14	11-Nov Veteran's Day	13-Nov CH14
16-Nov CH14	18-Nov CH14	
Final Exam Friday, November 20, 8:00-10:00AM		

Other Important Dates: September 9th is the last day to drop the course using Cyberbear. October 21st is the last day to drop with instructor and advisor signatures (W appears on transcript). November 18th is the last day to drop the course or change grading option using a late drop form (WP/WF appears on transcript). Acceptable reasons for a late drop are listed in the university catalog and are limited to: accident, illness, family emergency or a change in work schedule. The following examples are not considered sufficient for a late drop: protecting GPA, forgetting to turn in the change slip, losing financial aid, losing eligibility to engage in sports.