

COURSE SYLLABUS

CLASS HOURS: MF: 1:00-1:50pm, TuTh: 1:10-2:00pm, Wickersham 201 (CRN 14092)
INSTRUCTOR: Dr. Zhigang Han
OFFICE: Wickersham 216
OFFICE HOURS: M: 12-12:30pm, Tu: 11am-12:30pm, Th: 10am-12:30pm, F: 12-12:30pm
OFFICE PHONE: (717) 871-7310
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Textbook: Umble and Han, *Transformational Plane Geometry*, ISBN 9781482234718

Tools: MIRA, compass, ruler, and protractor.

Grading: You can see your grades on D2L (**Assessment** → **Grades**). Coursework will be weighted as follows:

Problem Sets	MIRA Assignments	Paper	Three tests	Final Exam
10%	10%	10%	15% each	25%

The letter grade will be assigned as follows:

A: 93% - 100%	A-: 90% - 93%	B+: 87% - 90%	B: 83% - 87%	B-: 80% - 83%
C+: 77% - 80%	C: 73% - 77%	C-: 70% - 73%		F: 0% - 70%

Tentative Schedule: The following schedule may need to be adjusted in the event of unforeseen circumstances.

	Topics	Due dates		Topics	Due dates
08/22	1.1 Existence and incidence		10/17	5.5 Glide reflections	
08/23	1.1		10/18	5.5	
08/25	1.2 Distance and ruler		10/20	Classical vs Transformational	Mira 2 due
08/26	1.2		10/21	Classical vs Transformational	PS 6 due
08/29	1.3 Plane separation		10/24	Review session 2	
08/30	1.4 Protractor		10/25	—	Test 2
09/01	1.4		10/27	6.1 Fundamental theorem	
09/02	1.5 SAS/Euclidean parallel	PS 1 Due	10/28	6.2 Classification of isometries	Withdraw deadline
09/05	—	Holiday	10/31	6.3 Isometry recognition	
09/06	2.1 Exterior angle theorem		11/01	6.4 Geometry of conjugation	
09/08	2.2 Triangle congruence theorem		11/03	8.1 Plane similarities	
09/09	2.2		11/04	8.1	PS 7 Due
09/12	2.3 AIAT/Angle sum theorem		11/07	8.2 Classification of dilatations	
09/13	2.3	PS 2 due	11/08	8.2	
09/15	2.4 Similar triangles		11/10	8.3 Classification of similarities	
09/16	2.4		11/11	8.3	
09/19	Pythagorean theorem	Mira 1 due	11/14	Classical vs Transformational	Mira 3 due
09/20	Pythagorean theorem	PS 3 due	11/15	Classical vs Transformational	PS 8 Due
09/22	Review session 1		11/17	Review session 3	
09/23	—	Test 1	11/18	—	Test 3
09/26	Ch 3 Transformations		11/21	Circles	
09/27	4.1 Translations		11/22	Circles	
09/29	4.2 Rotations		11/24	—	Thanksgiving
09/30	4.2		11/25	—	Thanksgiving
10/03	4.3 Reflections		11/28	Circles	
10/04	4.3	PS 4 due	11/29	Circles	
10/06	5.2 Rotation = two reflections		12/01	Circles	Mira 4 due
10/07	5.3 Reflection = two reflections		12/02	Final review session	PS 9 due
10/10	—	Fall Break	12/05	Final review session	
10/11	—	Fall Break	12/07	Wednesday	Final: 10:15-12:15
10/13	5.4 Angle addition theorem				
10/14	5.4	PS 5 Due			

Course Description: Math 505 is a 4-credit course in geometry from both classical and transformational points of view. The classical part of the course will focus on the axiomatic development of geometry. The transformational part of the course will begin with the study of two families of transformations: isometries and similarities, followed by the investigation of various geometric theorems in terms of these two families of transformations. Emphasis on proving geometric theorems using both classical and transformational approaches.

Course Objectives: Upon successful completion of this course, the student will be able to:

1. Demonstrate an understanding of axiomatic treatment of geometry.
2. Classify an isometry as a reflection, rotation, translation, or glide reflection; factor an isometry as a composition of three or fewer reflections;
3. Classify a similarity as an isometry, stretch, stretch rotation, or stretch reflection.
4. Use the MIRA to perform various geometric constructions;
5. Write proofs in the context of both classical and transformational geometries.

Attendance: Attendance is required if you are healthy. Frequent unexcused absence will affect your grade negatively.

D2L: All course documents will be posted on D2L (**Resource** → **Content**).

Problem Sets and MIRA Assignments: There will be nine problem sets. Your lowest problem set score will be dropped. There will be four MIRA assignments.

You are encouraged to work with other students. **However, you must write your own solutions, and you must name all your collaborators. Failure to do so may result in disciplinary action.**

Paper: Each student will discuss with the instructor to select a topic of their interest. The paper will be due towards the end of the semester.

Exams: There will be three in-class tests and one (cumulative) final exam.

Technology: You are encouraged to explore geometry using computer software such as Geometer's Sketchpad or GeoGebra. While software can enrich the experience of learning geometry, it is not required for this course.

Academic Honesty: The university's academic honesty policies can be found in the undergraduate catalog. I have zero tolerance for any academic dishonesty, and will report all violations to appropriate school authorities.

Special Accommodations: It is a university policy to provide reasonable accommodations to students with learning disabilities. Please contact the office of learning services for details: 352 Lyle Hall, 717-871-5554.

Exam Make-up Policy: Make-up exams will be given for reasons described in the undergraduate catalog. These reasons include: personal illness, death or critical illness in the family, participation in a university-sponsored activity, jury duty, military duties, or religious holidays. In any case, you will be asked to provide documentation to justify your absence. **One week notice** is required in the case of foreseeable absences.

Title IX Responsibilities for Faculty: Millersville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to comply with the requirements of Title IX of the Education Amendments of 1972 and the University's commitment to offering supportive measures in accordance with the new regulations issued under Title IX, the University requires faculty members to report to the University's Title IX Coordinator incidents of sexual violence shared by students. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report to the person designated in the University Protection of Minors policy sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred.

Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: www.millersville.edu/titleix.

COVID-19 Plan: The following plan will be in place if someone in the class is required to quarantine due to COVID-19.

1. If the instructor is required to quarantine due to COVID-19, the instructor plans to continue teaching the class remotely using a combination of asynchronous recorded videos and synchronous zoom classes for the duration of quarantine.
2. If a student is required to quarantine due to COVID-19, they should contact the instructor as soon as possible. The instructor will provide class videos/notes and set up zoom meetings if needed so that the student can learn remotely for the duration of quarantine.