

## **MTH-483/MED-583 Fundamental Concepts of Geometry**

University of Detroit Mercy

Department of Mathematics and Computer Science

Lecture: Mondays, 6:40pm-9:10pm, Room E223

Instructor: Abhijit Dasgupta

Office: E254

Phone: 313-993-1062

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Office Hours: Mondays: 3:30pm-4:30pm, Tuesdays and Thursdays: 2:00pm-3:30pm, and anytime my office door is open. Or, email, call, or talk to me in person to schedule an appointment.

### **Required Textbook**

*College Geometry: A Problem-Solving Approach with Applications*, by Gary L. Musser and Lynn E. Trimpe, Prentice-Hall, 1994.

### **Course Description**

Credit applies only in math education. Euclidean Geometry, including measures of plane figures and solids. Problems involving measures of angles, lengths, perimeters, circumference, areas, and volumes. Reasoning and deduction with plane geometry involving congruence, parallelism, and similarity. Euclidean geometry as the fundamental learning system for the axiomatic method.

### **Course Outcomes**

After taking this course, students will be able to:

1. Give clear and concise definition of geometric terms, primitive notions, and postulates.
2. Solve problems involving the measurement of angles, lengths, perimeters, circumference, areas, and volumes.
3. Carry out rigorous deductions (proofs) of geometric theorems from the postulates using pure logic.
4. Learn the axiomatic method as a concept as well as exercise it.
5. Carry out basic straight-edge and compass constructions.
6. Learn to use problem-solving strategies for geometric problems.

### **Final Exam**

The final exam will be on Monday, December 13, 7:30pm-9:20pm. Note that the exam time is different from that of the lecture. It will be a comprehensive (cumulative) exam, and is mandatory for determining your overall grade. The final exam score cannot be replaced by any of the test scores.

### **Grading Policy**

Homework and projects: 10%

5 Tests out of 6: 60% (50% for graduate students)

Final Exam: 30%

No make up exams will be given. However, a final exam score which is higher than the lowest test score will replace the lowest test score. A missed test will count as the lowest test score.

For graduate students, there will also be an additional term paper required on any of the following topics: (i) Axiomatic methods, (ii) impossibility of constructions, or (iii) any other topic with instructor's prior approval. It will be 10% of the final grade. Paper is due on November 29th.

Grading Scale: A: 90 or above B: 75-89 C: 60-74 D: 50-59

### **Tentative Schedule** (subject to change)

Week	Date	Material and Activities
1	Sep 6	Labor day holiday
2	Sep 13	Chapter 1, 2.1, 2.2
3	Sep 20	2.2, 2.3, 2.4
4	Sep 27	Test 1, 3.1, 3.2
5	Oct 4	3.3, 3.4, 3.5
6	Oct 11	Test 2, 4.1, 4.2
7	Oct 18	4.3, 4.4
8	Oct 25	Test 3, 5.1, 5.2
9	Nov 1	5.3, 5.4, 5.5, 6.1
10	Nov 8	Test 4, 6.2, 6.3
11	Nov 15	6.4, 7.1, 7.2
12	Nov 22	Test 5, 7.3, 7.4
13	Nov 29	8.1, 8.2, 8.3
14	Dec 6	Test 6, Final Review
15	Dec 13	Final Examination (Cumulative) 7:30pm-9:20pm

### **General Policy**

1. You are encouraged to ask questions!
2. Working out the homework assignments will be an integral part of learning the material in the course.
3. This course description is subject to change.

### **Important Dates**

October 1	Last Day to Drop a Course Without a W
November 22	Last Day to Withdraw From Class
November 25-28	Thanksgiving Recess (University Closed)

### **Academic Integrity**

Students are expected to conform to a high standard of honesty and integrity in this course. Any kind of cheating or unfair means to perform in this course (or permitting or helping someone to do so) will result in an automatic zero score for that assignment or test. In addition, the student will be reported to the proper university authority for

appropriate action. (See the University Catalog and the Engineering and Science Student Handbook for details.)