

MTG 1204 GEOMETRY FOR EDUCATORS Section U01 SPRING 2012

SYLLABUS

Meeting times and place: MWF 1:00pm–1:50pm PC 424

INSTRUCTOR: Professor Diaz

E-MAIL: Jose.Diaz-Lopez@fiu.edu

OFFICE HOURS: MW 2:30pm–3:30pm at DM 416 by appointment only

TEXTBOOK: College Geometry, A Problem-Solving Approach with Applications, by Musser, Trimpe, and Maurer, 2nd edition, Prentice-Hall publishers.

PREREQUISITE: Knowledge of high school algebra, including the ability to solve both linear and quadratic equations in one variable.

COURSE OBJECTIVE:

To acquaint future teachers with some basic concepts in Euclidean geometry and provide them with ideas and activities easily adaptable to the classroom.

HOMEWORK:

Problem numbers are in parentheses after the title of each section in the course outline below. This work will be neither collected nor graded, and so it will not directly affect your grade for the course. However, it is strongly advised that you complete the assigned homework on a regular basis, since the only way to learn the material is through adequate practice. The best way to ensure that you know how to do something is to actually do it, as thoroughly and as frequently as possible. The questions selected for the exams will be very similar to those of the homework.

EXAMS AND GRADES:

There will be a total of four 50-minute midterm exams, plus a 2-hour final exam. The final exam alone contributes 25% to the overall grade.

All tests will be of the “free response” type, meaning no multiple choice, no matching, and only an occasional set of true-false questions. Although correct answers are certainly necessary to receive full credit, most of the credit awarded for each test question will be for the manner in which you illustrate your thought process. A correct answer with little or no supporting work is virtually worthless, while an incorrect answer with clear and sensible supporting work (even with some sort of minor error) may receive almost full credit. Keep this in mind as you complete your homework assignments. The more thoroughly and carefully you work out the homework problems, the better you will do on your exams.

There will be no make-up tests. For any test that you do not take in class at the scheduled time, your score will be recorded as a zero. At the end of the semester, the single lowest score among the first four exams will be replaced by the score that you earn on the final exam (provided it is better than the lowest midterm result, of course).

The real purpose behind the policy of replacing a bad score is to compensate for missing an exam. If you miss an exam, then the zero becomes the lowest score and will be replaced by the final exam score. If you don't miss any exams, then this feature becomes a bonus.

The grade scale is as follows:

A: 94, A–: 90, B+: 87, B: 83, B–: 80, C+: 75, C: 70, C–: 67, D+: 64, D: 60, D–: 57

For example, suppose your first four test scores are 80, 60, 35, and 50, and suppose you score 70 on your final exam. Since the final exam score is higher than the previous lowest score of 35, the 35 would be discarded, and replaced by a 70. Your final score would then be:

$$0.1875 \times (80+60+70+50) + 0.25 \times 70 = 66.25$$

You are expected to read all sections of the text listed in the course outline and to know all definitions, postulates, and theorems contained therein.

You are responsible for everything that is discussed in class, including examples I select from the exercise sets to present in class.

You are responsible for any and all exercises assigned as homework, and you should be able to work any exercise similar to those assigned as homework.

CALCULATORS:

Please note that no formula sheets will be allowed during exams. You are expected to memorize basic facts and formulas. Although use of a scientific calculator will sometimes be necessary in both the homework and the exams, you may not use a graphing calculator during an exam. Also, you may not use a cell phone as a calculator.

ATTENDANCE:

You are expected to attend and to be on time to all class meetings. You are responsible for all coursework, whether you are present or not. If you miss a class, you are responsible for any information given in that class and any work assigned on that day.

CLASSROOM ETIQUETTE:

To create and preserve a classroom atmosphere that optimizes teaching and learning, you are expected to conduct yourself at all times in a manner that does not disrupt teaching or learning. You are expected to be on time and to remain in the classroom for the duration of the lecture. Talking, eating, sleeping, checking e-mail, using a phone, reading a newspaper, preparing for another class, and/or packing up early is disruptive to others around you and to the instructor. Electronic devices be turned off during class. Student conduct that disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class.

COURSE OUTLINE:

This is a tentative schedule. Adjustments to this schedule can be made as needed. Any changes will be announced in class as far in advance as possible.

- 2.1 Undefined terms, definitions, postulates, segments and angles (1–19 odd, 23, 25, 27)
- 2.2 Polygons and circles (1, 3, 9, 11, 13, 17, 27, 29, 31)
- 2.3 Angle measure in polygons and tessellations (5–25 odd, 29–33 odd)
- 2.4 Three-dimensional shapes (1, 7, 9, 13, 21–31 odd)
- 2.5 Dimensional analysis (1–27 odd)

Test #1 (§2.1–2.5)

- 3.1 Perimeter, circumference and area of rectangles and triangles (1,3, 9, 11, 15–21 odd, 25, 27, 31, 33, 35, 39)
- 3.2 More area formulas (1–25 odd, 29, 33, 39, 41)
- 3.3 The Pythagorean Theorem and right triangles (1–9 odd, 13–43 odd)
- 3.4 Surface area (1–29 odd)
- 3.5 Volume (3–17 odd, 21–33 odd)

Test #2 (§3.1–3.5)

- 4.1 Reasoning and proof in geometry (1–45 odd)
- 4.2 Triangle congruence conditions (1–43 all)
- 4.3 Problem solving using triangle congruence (1–15 odd)
- 5.1 Indirect reasoning and the Parallel Postulate (1–40 all)
- 5.2 Important theorems based on the Parallel Postulate (1–29 all)
- 5.3 Parallelograms and rhombuses (1–31 all, 33–43 all)
- 5.4 Rectangles, squares, and trapezoids (1–46 all)

Test #3 (§4.1–4.3, 5.1–5.4)

- 6.1 Ratio and proportion (1–35 all, 38–41 all)
- 6.2 Similar triangles (1–19 odd, 20, 31–39 odd)
- 6.3 Applications of similarity (1–39 odd)
- 6.4 Using right triangle trigonometry to solve geometry problems (1–46 all, 59–69 all)
- 7.1 Central angles and inscribed angles (1–46 all, 55, 57)
- 7.2 Chords of a circle (1–22 all, 27–32 all)
- 7.3 Secants and tangents (1–14 all, 15–26 all)

Test #4 (§6.1–6.4, 7.1–7.3)

Review

Final Exam (Comprehensive over Chapters 2–5) Apr 23, 12:00PM - 2:00PM