Spring 2011

**COURSE/Section #:** MATH 3123-270  
**COURSE TITLE:** Concepts of Geometry

**PROFESSOR:** Dr. Dawn Slavens  
Professor of Mathematics  
**PREREQUISITE:** Math 1233 and Math 2043 with grades of C or better.

**CLASS MEETS:** MW 4–5:20 PM  
BO 115  
**TEXT:** Geometry A Guided Inquiry  
G.D. Chakerian, Calvin D. Crabill, Sherman K. Stein

**FINAL EXAM DATE AND TIME:**  
Monday, May 9th, 5:45 – 7:45 PM in BO 115

**OFFICE:**  
Bolin Science Hall, Office 113A

**PHONE:**  
Office: (940) 397-4013  
e-mail: dawn.slavens@mwsu.edu

**OFFICE HOURS:**  
M: 9:00 am – 12:00 pm  
TR: 2:00 pm – 4:00 pm  
F: 8:00 am – 10:00 am  
Other office hours are by appointment.

**GRADING POLICY:**

Grades will be calculated using the following point scheme:  
The grading scale is as follows:

<table>
<thead>
<tr>
<th>Points</th>
<th>Description</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>300 pts</td>
<td>Hourly Exams</td>
<td>90% ≤ A ≤ 100%</td>
</tr>
<tr>
<td>150 pts</td>
<td>Final Exam</td>
<td>80% ≤ B &lt; 90%</td>
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<tr>
<td>70 pts</td>
<td>Homework Percentage × 0.7</td>
<td>70% ≤ C &lt; 80%</td>
</tr>
<tr>
<td>30 pts</td>
<td>Class Participation</td>
<td>60% ≤ D &lt; 70%</td>
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<tr>
<td></td>
<td></td>
<td>F &lt; 60%</td>
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</tbody>
</table>

**ATTENDANCE AND MAKE-UP WORK POLICIES:**

**Participation**

Since this course relies heavily on group participation, unexcused absence from class or excessive late arrivals to or early departures from class will lower your final grade. In addition to regular class attendance, participation in class is essential (e.g., during class you will work in groups to solve a variety of problems and you will be asked to share your thoughts on the mathematical task within these problems, including solution methods, both in your groups and at the board). For each unexcused absence, your participation grade will be lowered by 5 points. Excessive late arrivals or early departures from class will count as unexcused absences. For extreme circumstances, in which the instructor is convinced that an absence was unavoidable, the instructor may consider an absence to be excused. It is the responsibility of the student to discuss any such absence with the instructor, as well as, when requested by the instructor, provide documentation supporting the reason for the absence. In addition to working problems within groups in class, you will be assigned problems to complete at home. Regularly, you will be asked to share your solutions to problems in your group or with the entire class. For each class meeting in which you have not prepared sufficiently (i.e., do not have your written assignments for sharing), your participation grade will be lowered by 3 points.

**Homework**

Homework is due at the beginning of each class period. No late homework is accepted, except possibly in the event of an excused absence. A student who is absent may turn his/her homework in by faxing it to the attention of the instructor at 940-397-4442, or by scanning it and sending it through email. Homework must be faxed or emailed by the beginning of class to avoid being late.

**Exams**

No make-up exams will be given!!!
**COURSE OBJECTIVES:**

To develop the student's understanding of geometrical concepts from both an inductive approach and a deductive approach. Furthermore, it is to develop in-depth knowledge that teachers of grades K-9 need in order to be proficient in teaching the geometric concepts found in current public school curricula.

**COURSE CONTENT:**

This course covers standard concepts from Euclidean geometry, including congruence, similarity, parallel postulates, constructions, transformations, area postulates, and constructions using software such as Geometer’s Sketchpad.

**STUDENT OUTCOMES:**

Upon completion of this course, students will be able to:

1. describe, with examples, the role of inductive and deductive methods in the development of Euclidean geometry as a mathematical system;
2. do basic geometric constructions using a) a compass and straight edge, b) paper folding techniques, and c) a Mira;
3. discuss the notions of a point, line, and plane and related terminology and axioms;
4. describe a mathematical system and how axioms, undefined terms, defined terms, and theorems play an important role in the development of such a system;
5. show that two geometric figures are congruent by a) superimposing the two physically or mentally and b) a formal proof;
6. do basic geometric proofs;
7. discuss, with examples, the difference between congruent figures and similar figures;
8. use geometry (i.e. develop mathematical models) to solve real-world problems;
9. create geometric models, including the Platonic solids, cones, prisms, etc.;
10. develop measurement concepts related to one-, two-, and three-dimensional figures including perimeter, area, and volume.

**MATERIALS NEEDED ON A DAILY BASIS:**

1. Compass
2. Straightedge
3. Protractor
4. Color pencils
5. Lots of Paper
6. Scissors
7. Tape

**OTHER INFORMATION:**

**Software:** It is recommended that students purchase the following software: The Geometer's Sketchpad, Version 5. Students can purchase a non-expiring license or a one year license by scrolling to the bottom of the page of the following website (http://www.keypress.com/x24119.xml?Software=yes). Students who choose not to purchase the software can use computers on campus to complete homework that requires the use of the above software.

**Instructor Availability:** Office hours are when I will generally be available. However, if you become stuck or frustrated, come in and talk to me. You may make appointments if you have class during my office hours.

**Reading:** It is expected that you read the textbook. The class is not going to be run in a lecture style format. You must read the textbook or you will miss important information.

**Homework:** Homework will be assigned regularly and turned in to be graded. Students will also be expected to present to the class many of their solutions to homework problems.
Hourly Exams: Dates of hourly exams will be announced at least one week prior to the exam. There will be three hourly exams.

Final Exam: The final exam will be comprehensive and must be taken at the time scheduled by the University, Monday, May 9th, 5:45 – 7:45 PM

Cell Phones and Pagers: Please turn these off during class!

Leaving Class Early: If you need to leave class prior to the dismissal of class, you must have the permission of the instructor. If you have not received permission prior to leaving class early, you will be given an unexcused absent for that class period.

Student rights: All students should refer to the MSU Student Handbook for information related to student responsibilities, rights and activities. Topics such as Student Affairs and Student Life, Academic Issues, Financial Issues, University Policies and Procedures, and Code of Student Conduct are included in this handbook.

Evidence of cheating: If there is evidence of cheating on an exam or plagiarism on any written assignments, or assisting a student in cheating or plagiarizing, you will receive a zero on the work and possibly a letter grade of F for the course. Further, university policy concerning reporting evidence of cheating to college deans, etc. will be followed.

Education is not received. It is achieved. – Author unknown