

Math 3703
Geometry for Teachers
Fall Semester 2007 – Wednesday Class

Instructor: Dr. Joy Black
Office Location: 318 Boyd Building

E-mail: jblack@westga.edu
Office Phone: 678-839-4128
Home Phone: 256-395-4647

Office Hours: MT - 3:30 p.m. – 5:30 p.m.
W - 10:30 a.m. – 5:30 p.m. or by appointment
(Office hours are subject to change)

Course Objectives

Students will demonstrate:

- A better understanding of standard vocabulary and symbols of elementary mathematics;
- An ability to reason logically and to provide justifications and coherent arguments for the plausibility of conjectures;
- An ability to use geometry in real-world problem solving;
- Well-developed spatial sense including both two- and three-dimensional figures (tessellations, symmetry, congruence, similarity, polygons and other curves, polyhedra);
- A better understanding of geometry and measurement from a historical perspective;
- A better understanding of measurement including the metric system;
- An ability to solve measurement problems involving perimeter, circumference, area, volume, temperature, and mass;
- A better understanding of synthetic, coordinate, and transformational geometry with an emphasis on problem solving;
- A better understanding of the uses of a variety of manipulatives, technology, and other materials for the P-8 level;
- A better understanding of the vision of mathematics education as put forth in NCTM's Principles and Standards (2000);
- A better understanding of the scope and sequence of elementary school mathematics programs;
- A knowledge of current professional literature in the field of mathematics education.

Text (OPTIONAL)

Billstein, Libeskind, & Lott. (2004). *A Problem Solving Approach to Mathematics for Elementary School Teachers, 9th edition*. New York, NY: Addison Wesley.

Additional Required Supplies

Math 3703 course packet of handouts which is available at the university bookstore.

Compass

Protractor

Ruler

Three children's books related to mathematical topics in MATH 3703 (Two have to be on geometry and/or measurement)

Folder

Three Ring Binder for Portfolio

Course Evaluation

<u>Assignments</u>	<u>Points</u>
Test - 2 @ 200 points	400
Portfolio	340
In-class group work & presentations	60
Comprehensive Final Exam	200
Bonus Assignment	10
Total	1000

Final course grades will be assigned as follows: A (900-1000 points); B (800-899 points); C (700-799 points); D (600-699 points); F (0-599 points).

Test

Math 3703 will consist of two regular exams and a comprehensive final exam. The instructor reserves the right to alter the exam schedule/format as conditions may warrant.

Test 1 – Chapters 9 and 10

Test 2 – Chapters 11 and 12

Final Exam – Comprehensive

Test Dates

September 26th – Test 1

November 14th – Test 2

Final – December 10th – 8:00 a.m. – 10:00 a.m.

Portfolio

Each student will create a geometry portfolio that will contain five sections. The final portfolio is due on or before November 14th. Any portfolio turned in after the due date will be assessed a late penalty of **twenty points**. Parts of the portfolio will be turned in on different dates during the semester. Due dates for these particular assignments are as follows:

Section 2

- 1) Quadrilateral Quandary – September 12th
- 2) Geometry Constructions – September 19th

- 3) Patty Paper Geometry – September 26th
- 4) Relating Perimeter and Area – October 31st
- 5) Volume – November 7th
- 6) Circle Folding Activity – November 14th
- 7) Tessellations – November 14th

Section 3

- 1) Literature Assignment 1 Due – September 5th
- 2) Literature Assignment 2 Due – October 3rd
- 3) Literature Assignment 3 Due – October 10th
- 4) Literature Assignment 4 Due – November 14th

Section 4

- Reflection 1 – August 22nd – Geometry and Me
 Reflection 2 – August 29th – Vygotsky and the Three Bears
 Reflection 3 – September 19th – Perimeter and Area
 Reflection 4 – October 3rd – Sweet Tooth Geometry
 Reflection 5 – October 17th – Patterns and Symmetry
 Reflection 6 – October 24th – Activity from the NCTM Illuminations Website

Bonus Assignment – October 3rd – No Bonus assignment can be turned in after this date.

Suggested Textbook Problems

The following problems have been suggested for you to work related to each chapter. These problems will not be turned in but you are responsible for working through the list. Related problems could appear on the chapter test and/or your comprehensive final.

Chapter 9

Section	Problems
9.1 – Page 585	4, 7a, c, 12a, c, 13, 19, 26
9.2 – Page 597	5, 6a, 7 9a, c, e, 13, 14
9.3 – Page 609	5a, 6a, c, 8a, 9a, c, 15
9.4 – Page 623	3, 10a, c, e, 14, 17a, 23

Chapter 10

Section	Problems
Constructions	Construct the bisector of a line segment. Construct the bisector of an angle. Construct parallel lines. Draw an angle and construct an angle congruent to it. Draw a line segment and construct a line segment that is congruent to it. Construct two triangles that are congruent by SSS. Construct two triangles that are congruent by SAS. Construct a perpendicular line to a line from a point on the line. Construct a perpendicular line to a line from a point not on the line.

	Construct the altitudes of a triangle
10.2 – Page 666	9a, c, e, g, i, 12a
10.3 – Page 677	12, 14
10.4 – Page 691	3a, c, 8a i, 9b, 10

Chapter 11

Section	Problems
11.1 – Page 746	1a, c, g, 5a, c, 6a, c, 9a, c, d, e, f, 12a, c, e, g 13, 16a, 17a, c, e, g, 20a, 22a, 25a, c
11.2 – Page 764	7a, e, 8 for polygon in 7e, 9a, c, 10, 16, 21b, 24a
11.3 – Page 781	1a, 2a, c, i, 3a, c, 5, 22, 23, 24
11.4 – Page 793	1a, c, e, g, 5, 10
11.5 – Page 816	5a, e, g, i, 9, 10, 37, 42, 43

Chapter 12

Section	Problems
12.1 – Page 839	2a, 4a, c, 6c, 8, 17a, c
12.2 – Page 854	4a, c, e, g, i, k, m, o, 10b, c, 13a, c
12.3 – Page 864	4a, 6a, 7a, c
12.4 – Page 874	4a, 5b i, 5b ii, 7b, d, 10b
12.5 – Page 884	1b, 4a, 7

In-class Group Work & Presentations

Students will be participating in group work in class. It is the responsibility of the group to make sure that each member of the group is prepared to present their solutions to the remainder of the class. Students must be in class and actively participating in the group work to receive these points.

Attendance Policy

Students are expected to attend all classes. This term a student may withdraw with a grade of W through October 8th, regardless of grades, absences, etc. This deadline has been established by the University. **After this deadline, if a student accumulated more than three absences throughout the semester, he/she will normally receive a grade of WF. (A grade of WF counts as an F.)** The three absences should be saved for sickness and other emergencies. **Late arrivals and early exits count one-half of an absence.** If a student is absent for a test and has an excuse from someone in authority, then the final exam grade will be used for the missed test in the calculation of the final course grade. No make-ups will be given. Students who maintain a perfect attendance record (i.e. no excused or unexcused absences) will have 6 points added to their Total Points at the end of the semester. Students should understand that **NO EXTRA CREDIT WILL BE GIVEN FOR ANY REASON!**

Conferences

Conferences can be beneficial and are encouraged. All conferences should occur during the instructor's office hours, whenever possible. If these hours conflict with a student's

schedule, then appointments should be made. The conference time is not to be used for duplication of lectures that were missed; it is the student's responsibility to obtain and review lecture notes before consulting with the instructor. The instructor is very concerned about the student's achievement and well-being and encourages anyone having difficulties with the course to come by the office for extra help. **Grades will be based on coursework, not on Hope Grant needs, financial aid, GPA, or any other factors outside the realm of coursework.**

Individual Accommodations

Students requiring individual educational accommodations should discuss their needs with the instructor within the first week of class.

Conduct and Academic Integrity

It is expected that students be familiar with the Student Conduct Code, Disciplinary Procedures and Disciplinary Sanctions in the Student Handbook. Cheating and/or any conduct that disturbs the classroom, the instructor, or the students WILL NOT be tolerated!! Any evidence that may show otherwise will be reported; appropriate actions will be taken; and consequences will result. If you are caught cheating on a reflection, children's literature assignment, portfolio assignments, or test you will receive an F for the course.

Pagers and Cell Phones

Students are not allowed to carry pagers and cell phones in the classroom unless they are set to an inaudible setting.

Important Dates to Remember

August 22nd – Reflection 1 Due
August 29th – Reflection 2 Due
September 5th – Children's Literature Assignment 1 Due
September 12th – Quadrilateral Quandary Due
September 19th – Construction Assignment Due
Reflection 3 Due
September 26th – Test 1
Patty Paper Assignment Due
October 3rd – Children's Literature Assignment 2 Due
Reflection 4 Due
Bonus Assignment
October 10th – Children's Literature Assignment 3 Due
October 17th – Reflection 5 Due
October 24th – Reflection 6 Due
October 31st – Area Assignment Due
November 7th – Volume & Surface Area Assignment Due
November 14th – Test 2
Portfolio Due
November 21st – NO CLASS

November 28th – Review for Final

December 10th – Final 8:00 a.m. – 10:00 a.m.