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M 136.01: Mathematics for K-8 Teachers II

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Math 136
Mathematics for Elementary Teachers
Spring 2014
Office: MA 004A

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Required Texts: A Problem Solving Approach to Mathematics for Elementary School Teachers
(11th Edition). Billstein, Libeskind & Lott (Pearson Education, Inc., 2013)

Required materials: grid paper, calculator, ruler with centimeters and inches, protractor, compass, pencil, colored pen or colored pencils, access to a computer for Geogebra assignments.

Overview:

This course is designed to build a foundation of mathematics content preparing the student to teach all aspects of geometry and measurement in the elementary classroom. This includes working with the concepts of geometric figures: congruence, similarity, translation, rotation, reflection, symmetries, tessellation, constructions, coordinates; and measurement concepts: linear measure, area, volume, mass, temperature. Application and exploration of geometry relationships are developed through use of dynamic geometric software.

Objectives:

- * Students will build a mathematical foundation of geometry concepts.
- * Students will engage in meaningful mathematical activities as they apply to the elementary classroom.
- * Students will recognize the value of cooperative learning exercises in the mathematics classroom.
- * Students will develop competence and confidence in the ability to teach mathematics to children.
- * Students will apply mathematics concepts to the elementary learner.

Learning Goals:

1. To identify and solve elementary geometry problems
2. To model the logic of arguments involving parallelism, congruence, and similarity
3. To use basic measurement to approach problems involving length, area, and volume
4. To explore, conjecture, and prove mathematical ideas and theorems
5. To perform classical compass-straightedge constructions
6. To develop a facility with geometric theorems and proofs, through hands-on exploration

Attendance:

The class sessions will be interactive and “hands on”. Absences affect the productivity of your team. Please make every effort to be in class and on time. An attendance grade will be included as a homework grade. After 3 absences a 1 point reduction to that 10 point grade will be made. Long term absences and emergency situations can be discussed with the professor on an individual basis.

Should you have a legitimate reason for missing class,

1. Notify your team that you will be absent. Get any work you are responsible for to a team member so that they are able to be successful without you present. Set a time with to meet with a team member for notes covering the material you missed.
2. Notify your instructor by email. Bonnie.spence@umontana.edu Scan/ photograph and email any assignments due. All missing assignments will be considered late after 24 hours beyond the date of absence unless other arrangements are made. Late papers will earn a credit of 0 points.

Participation:

As potential classroom teachers, your charge will be to help ALL students learn mathematics. Not all students may learn in the same way that you do. Leaving our own “comfort zone” to learn in a way that may be unfamiliar to you builds the knowledge and background for teaching effectively. I expect each of you will engage in the problems we do in class and support the learning of your team.

Tests/Projects:

A test (or project) will follow each unit. Tests will require logical explanations and justification as support. These may be traditional tests or an alternative type of assessment. Tests are eligible for makeup ONLY if the instructor is notified of absence PRIOR to the class missed. Students are responsible to schedule a make up time with the instructor.

Quizzes:

Quizzes will be given throughout the course. Expect at least 1 quiz per unit. Students will sometimes be allowed to use homework assignments or notes as a reference during a quiz. No makeup quizzes given without a doctor's excuse. In place of makeup quizzes, the lowest quiz score will be dropped.

Extended Homework:

Homework will consist of finishing class activities, exploring new concepts, working problems, and completing lab assignments. It is the student's responsibility to complete it PRIOR to coming to the next class. Homework will be the basis for quizzes and may be checked for quality and completeness. To earn credit for assignments, send your work via a friend, email, or other means within 24 hours of a missed class.

Online homework through MML:

My Math Lab access will be available for support to this class. Use videos, Powerpoints, online textbook and homework questions to help you feel confident about the course content. Students are expected to ask about specific questions of difficulty either in class or at office hours and are encouraged to complete all assignments to a level of 100% accuracy.

Final Exam:

The final exam will be a comprehensive test of the concepts covered throughout the semester.

Grading Scale:	93-100%: A	90-92%: A-	87-89%: B+	83- 86%: B
	80-82%: B-	77-79%: C+	73-76%: C	70 - 72%: C-
	67-69%: D+	63-66%: D	60-62%: D-	below 60%: F

You must earn a C- or better to pass since it is a required class for the elementary education major.

Final Grade:

Extended Assignments: In class activities, labs, and homework	15%
Online Homework (MML)	10%
Tests/Projects	40%
Quizzes	15%
Final Exam	20%

NOTE: Successful completion of Math 135 is a prerequisite to this course. If you have not taken, or earned a passing grade in Math 135, please speak to your instructor immediately.

EXPECTATIONS:

- * All cell phones will be turned off during class and put away in a bag or backpack. No cell phones in laps or on tables. Sending or reading messages during class will result in a diminished attendance grade.
- * All students are expected to be familiar with the Student Conduct Code. You can find it in the "A to Z Index" on the UM home page.
- * All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

NOTE: Students with disabilities are welcome to discuss accommodations with me. I will make every effort to assist you in the manner most appropriate for your specific needs.