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Spring 2-1-2017

### M 133.03: Geometry and Measurement for K-8 School Teachers

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**Math 133 Geometry and Measurement for K-8 Teachers**  
**MWF 1:00-1:50 pm CRN 33872**

**Semester: Spring 2017**  
**Location: LA 235**

**Instructor:** Bonnie Spence, Office Math 004A  
Office hours MWF 9:30-10:30 am, or by appointment  
Contact email [bonnie.spence@mso.umt.edu](mailto:bonnie.spence@mso.umt.edu), phone 243-4808

**Course Description:** The study of geometry and geometric measurement for prospective elementary and middle school teachers, including synthetic, transformational, and coordinate geometry, constructions, congruence and similarity, 2-dimensional and 3-dimensional measurement, and problem solving.

**Prerequisite:** M 132

**Course Materials:** Required Textbook, *Sybilla Beckmann: Mathematics for Elementary Teachers with Activities Plus NEW Skills. 4th edition.* (Pearson, 2014). with MyMathLab access ISBN 9780321825728

Notebook of choice, pencil, colored pen, grid paper (optional)  
Students should have access to a protractor, compass and calculator at home.

All students are required to activate their MyMath Lab accounts. MyMath Lab provides students with immediate feedback to understanding and is a great study tool. You will have access to videos, practice quizzes, and an online textbook. (see attached instructions)

**Learning Outcomes:** Upon completion of this course, a student will be able to:

- Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships;
- Apply transformations and use symmetry to analyze mathematical situations;
- Use visualization, spatial reasoning, and geometric modeling to solve problems;
- Describe and apply measurable attributes of objects and the units, systems, and processes of measurement;
- Apply appropriate techniques, tools and formulas to determine measurements for length, area, and volume;
- Develop a deep understanding of the mathematical concepts needed for effective teaching by developing the ability to examine and explain underlying mathematical structure in using multiple geometric representations and tools for solving problems.

**Classwork:** Class activities are a mix of individual, partner, group, and all class participation. Activities with manipulatives and related discussions are difficult to replicate in the case of an absence from class. Deeper learning occurs when students are in attendance to share their explanations and methods of solving problems with each other. Please attend regularly.

**Homework:** Homework in this course is a mix of preparation for the next class, completion of an activity from a prior class, and/or skills practice both online or offline.

Online assignments Online work will be a combination of MyMathLab and Buzzmath.com. Students are encouraged to attempt problems, use examples, and get help to obtain 100% on online assignments.

Offline assignments Not all homework will be collected by the instructor, but it may be checked for completion. Homework in general is viewed as a formative assessment tool. This means it provides both the instructor and the student with feedback to their understanding and progress in the course. In order to provide meaningful feedback, a completely attempted assignment is necessary. Graded homework will be marked with comments and a plus, check, or minus. A plus or check will count as a completely attempted assignment. A minus will show that you handed in a paper that lacked quality work or a large portion was incomplete.

Homework will be combined to form one “A Criteria: Knowledge and Understanding” Grade using the following basis.

90%-100% grades at + or ✓	Level 7-8
70%-89% grades at + or ✓	Level 5-6
60%-69% grades at + or ✓	Level 3-4
Less than 60% grades at + or ✓	Level 1-2

**Assessments:** Throughout the course, you will be assessed at least twice in each of the following criteria on a scale of 0 to 8:

- A Knowledge and Understanding**
- B Patterns**
- C Communicating**
- D Real World Application**

Assessments will be in the form of tests, investigations, and projects.

Week	Related Chapters	Content	Assessment Type
1-3	Chapter 10	Basic terms, shapes	Test
4-5	Chapter 11	Measurement	Project
6-9	Chapter 12	Area, perimeter, Pythagorean Theorem	Investigation
10-12	Chapter 13	Volume and Surface area	Project
13-14	Chapter 14	Transformations, triangle congruence and similarity	Investigation
May 11	Chapters 10-14	Final Exam	Test (Cumulative)

**The Final exam is scheduled from 3:20-5:20 pm, Thursday May 11 in LA235.**

Exam make-ups will ONLY be given under special and extenuating circumstances, such as a death in the family or illness, provided that: a note from the Health Service or doctor is furnished by the student AND permission is obtained from the instructor prior to the exam. The final exam is compulsory and no exceptions can be made about the date/time at which it is held- this date is determined by the University Administration.

**Grading Policy:** You must earn a C- or better in this course to pass the requirement in the School of Education. You may change to Credit/No Credit up to the last day of the class. Credit will be awarded to students earning a D- or better. However, if you choose this option the grade cannot be counted towards the School of Education requirement nor the UM graduation requirement.

Grades will be determined using the following scale of the combined four criteria: Knowledge, Patterns, Communicating, Real world applications.

Level 7-8 → A  
Level 5-6 → B  
Level 3-4 → C  
Level 1-2 → D  
Level 0 → F

**Plus/minus grades** will be assigned according to student's consistent achievement level at either the higher (+) or lower (-) boundary of each level.

*Please note there are no A+ grades assigned at the University of Montana.*

**Support:** Math support can be obtained by attending the Math Support Lab in the Mansfield Library, visiting your instructor’s office hours, and working on homework/studying with classmates. Do not wait until the week of assessments to get help. Ask questions regularly both in class and out of class as they arise.

**Accommodation:** The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and Disability Services for Students (DSS). If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate accommodation.

**Academic Honesty:** 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. All students need to be familiar with the Student Conduct Code. The Code is available for review online at the following web address: [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).

**Important Dates:**

Dates	Description
January 23, 2017	Spring classes begin
February 10, 2017	Last day to drop individual Spring classes on CyberBear with refund + no “W” on transcript
February 20, 2017	President’s Day Holiday – no classes, offices closed
March 20-24, 2017	Spring Break – no classes
April 3, 2017	Last day to drop using a <a href="#">Course Drop form</a> with instructor’s & advisor’s signatures. A ‘W’ will appear on the transcript for dropped courses.
May 5, 2017	Last instructional day of Spring-- Last day to drop with instructor, advisor, and Dean’s signatures. A ‘WP’ or ‘WF’ will appear on the transcript for dropped classes.
May 8-12, 2017	Spring Finals Week <b>M133 FINAL 3:20-5:20 pm, Thursday May 11</b>

Acceptable reasons for a late drop are listed in the university catalog and include reasons such as accident, illness, family emergency or a change in work schedule. The following examples are not considered sufficient for a late drop: protecting GPA, forgetting to turn in the change slip, losing financial aid, losing eligibility to engage in sports.