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M 133.02: Geometry and Measurement for Elementary School Teachers

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Math 133 Geometry and Measurement for K-8 Teachers
[section2]
MWF 10-10.50 am and Moodle

Semester: Spring 2022

Location: LA 106
Instructor: Dr. Sriraman, Office Math 310
Contact email sriramanb@mso.umt.edu

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. 5th edition.* (Pearson).
Notebook of choice, pencil, protractor, compass,

Learning Goals

1. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships;
2. Apply transformations and use symmetry to analyze mathematical situations;
3. Use visualization, spatial reasoning, and geometric modeling to solve problems;
4. Describe and apply measurable attributes of objects and the units, systems, and processes of measurement;
5. Apply appropriate techniques, tools and formulas to determine measurements for length, area, and volume;
6. 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.

Course Agenda: We will cover material from chapters 10-14.

Academic Misconduct: Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. Academic misconduct is defined as all forms of academic dishonesty and the Student Conduct Code. In particular, Student Conduct Code Section IV.a.5 identifies the following violations: Submitting false information: Knowingly submitting false, altered, or invented information, data, quotations, citations, or documentation in connection with an academic exercise.

All students need to be familiar with the Student Conduct Code. You can find it in the [A to Z Index](#) on the UM home page.

DISABILITY MODIFICATIONS: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Office of Disability Equity (ODE) for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with ODE, please contact them at 406-243-2243 or ode@umontana.edu. The ODE webpage is available at <https://www.umt.edu/disability/>

Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish.

ADD / DROP POLICIES and IMPORTANT DATES: All dates are found at the Registrar's Webpage. Visit:
<https://www.umt.edu/registrar/calendar/spring-2022.php>

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.

Grading Distribution:

Investigations	100	[10 x 10 points each]
Mid-term	100	
Final Exam	150	

350 points

Grading Scale: 90-100 A ; 80-89.9 B ; 70-79.9 C ; 60-69.9 D ; Below 60 F

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.

Endnotes

Investigations Folder: I will assign “interesting” investigations periodically over the course of the semester [which will be posted on Moodle for Fridays]. Instructions for completing these will be found there as well. The folder will be collected in April.

Homework There will be homework assigned on a regular basis- and reviewed on Wednesdays. I will not be collecting homework but it is important you keep up by engaging in this activity. The midterm and Final will be based on many of these problems.

Mid-terms and Final

The midterm and Final are Take Home exams posted on Moodle. They will need to be submitted hard copy in class on the due dates.

COVID-19 University Policies

- Drinking liquids and eating food is discouraged in the classroom
- Mask use is required within the classroom or laboratory.
- If you feel sick and/or are exhibiting COVID symptoms, please don't come to class and contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine, you will receive support in the class to ensure continued academic progress.
- Up-to-Date COVID-19 Information from the University of Montana is available at the UM Coronavirus Website: <https://www.umt.edu/coronavirus>
- The [Office for Disability Equity \(ODE\)](#) can provide additional service to students if their quarantine is extended.