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M 133.B02: Geometry and Measurement for K-8 Teachers

Bharath Sriraman
University of Montana, Missoula, sriramanb@mso.umt.edu

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Math 133 Geometry and Measurement for K-8 Teachers **Semester: Fall 2020**
MWF 11-11.50 am and Moodle [section2]
Location: Mansfield 410 [Theta Rho Room]

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

- 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.

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.

DISABILITY MODIFICATIONS: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification. Students requesting remote learning are also required to contact DSS for the necessary paperwork.

ADD / DROP POLICIES and IMPORTANT DATES: **All dates are found at the Registrar's Webpage. Visit:** https://www.umt.edu/registrar/calendar/autumn-2020.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	80	[8 x 10 points each]
Moodle Discussion Forum	50	[10 x 5 points each]
Mid-term	100	
Final Exam	120	
	350 points	

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

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. 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 November.

Moodle Discussion Forum: Each student is expected to contribute to the discussion forum for each of the chapters we are covering. For each chapter, this will be in the form of starting one discussion thread by posing a question and answering one question in one of the discussion threads.

Homework There will be homework assigned on a regular basis- and reviewed periodically. 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 are to be sent to me via email as a pdf file.

COVID-19 University Policies

- Mask use is required within the classroom
- Each student is provided with a cleaning kit. The expectation is that students will clean their personal work space when they arrive for class, and before they leave the classroom
- Classrooms may have one-way entrances / exits to minimize crowding
- Students are discouraged from congregating outside the classroom before and after class
- Specific seating arrangements will be used to ensure social distancing and support contact tracing efforts
- Class attendance will be recorded to support contact tracing efforts
- Drinking liquids and eating food is discouraged within the classroom (which requires mask removal)
- Stay home if you feel sick and/or if exhibiting COVID-19 symptoms
- If the student is sick or displaying symptoms, please contact the Curry Health Center at (406) 243-4330
- Up-to-Date COVID-19 Information from the University of Montana
  - UM Coronavirus Website: https://www.umt.edu/coronavirus
  - UM COVID-19 Fall 2020 website: https://www.umt.edu/coronavirus/fall2020.php
- Strongly encourage students to remain vigilant outside the classroom in mitigating the spread of COVID-19