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### M 133.02: Geometry and Measurement for Elementary School Teachers

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**GEOMETRY AND MEASUREMENT FOR ELEMENTARY SCHOOL TEACHERS**  
**MATHEMATICS 133 SECTION 2**  
**CRN 72446**

**INSTRUCTOR** Sara Killeen  
Email: sara.killeen@umontana.edu  
Office: M 205c, MC 331  
OH: M 12:00pm-12:50pm (MC), TH 9:00am-9:50am (M), or by appointment

**WEBPAGE** <http://umonline.umn.edu/>

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

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.

**TEXT** Mathematics for Elementary School Teachers, 5th Edition (Sybilla Beckmann)

**LETTER GRADE** Your letter grade in the course will be determined by assessment of your ***understanding*** of predefined learning standards. For each standard, I will write an assessment that will provide me with the ability to assess your understanding on a 4-point scale according to:

Score	Student demonstrates...	Classification
4	...mastery beyond the learning target	Beyond Proficient
3	...full mastery of the learning target	Proficient
2	...partial mastery of the learning target	Nearing Proficient
1	...minimal mastery of the learning target	Novice

Each mid-semester exam will assess 3 or 4 standards. One standard will be assessed by knowledge displayed in the completion of a project. The rest will be assessed by knowledge displayed on pencil-and-paper assessments. You will have the opportunity to “challenge” each standard’s first assessment results once. You will not have the opportunity to challenge any project assessment results. At the end of the semester, letter grades will be assigned according to:

Grade	Semester’s Assessment Results
A	All 3s and 4s with a majority of 4s
B	All 3s and 4s with a minority of 4s
C	A mix of 1s, 2s, 3s and 4s with a minority of 1s and 2s
D	A mix of 1s, 2s, 3s and 4s with a majority of 1s and 2s
F	A mix of 1s, 2s, 3s and 4s with a 2/3 majority of 1s and 2s

## ± GRADE

Your plus/minus grade will be determined by assessment of your *effort* in the course. This aspect will be measured through the collection of homework practice and reading quizzes. Let  $T$  be the proportion of homework practice and reading quizzes earned out of the total possible, then, your plus-minus grade will be assigned according to:

$$\begin{array}{rclcl} 0.90 & \leq & T & < & 1.00 & \Rightarrow & + \\ 0.80 & \leq & T & < & 0.90 & \Rightarrow & \\ 0 & \leq & T & < & 0.80 & \Rightarrow & - \end{array}$$

Please note that there is no “A+” grade given at the University of Montana.

## 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:

<https://www.umontana.edu/student-affairs/community-standards/default.php>.

## ODE

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, [ode@umontana.edu](mailto:ode@umontana.edu), or visit [www.umontana.edu/disability](http://www.umontana.edu/disability) for more information. 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.

## POLICIES

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 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.

## DATES

The last day to add/drop or change grading option to Audit by Cyberbear is 9/20. The last day to change sections and to change grading options is 11/1. This is also the last day to drop. Changes after this deadline and until 12/10 must be done by Petition to Drop/Add after deadline and approved by me, your advisor and the appropriate Dean. Approval requires genuine extenuating circumstances as listed in the university catalog and are limited to: accident, illness, family emergency or a change in work schedule.

## SEMESTER SCHEDULE

Monday	Wednesday	Friday
Aug 30 Intro/10.1	Sep 1 10.1	Sep 3 10.2
Sep 6 Labor Day	Sep 8 10.3	Sep 10 10.4
Sep 13 10.4	Sep 15 Project 1 and Review	Sep 17 Assessment
Sep 20 11.1	Sep 22 11.2	Sep 24 11.3
Sep 27 11.4	Sep 29 Project 2 and Review	Oct 1 Assessment
Oct 4 12.1	Oct 6 12.2	Oct 8 12.3
Oct 11 12.4	Oct 13 12.4	Oct 15 12.5
Oct 18 12.6	Oct 20 12.7	Oct 22 12.8
Oct 25 12.9	Oct 27 Project 3 and Review	Oct 29 Assessment
Nov 1 13.1	Nov 3 13.2	Nov 5 13.3
Nov 8 13.3	Nov 10 13.4	Nov 12 Project 4 and Review
Nov 15 Assessment	Nov 17 14.1	Nov 19 14.2
Nov 22 14.3	Nov 24 Thanksgiving	Nov 26 Thanksgiving
Nov 29 14.3	Dec 1 14.4	Dec 3 14.5
Dec 6 14.6	Dec 8 14.7	Dec 10 Project 5 and Review
<div>Final Assessment</div> <div>Monday, December 13, 8:00-10:00</div>		

## HOMEWORK ASSIGNMENTS

Section	Problems for Section	Due Date
10.1	2,3,7,8,11	Sep 17
10.2	6,	Sep 17
10.3	1,3	Sep 17
10.4	3,5,7,9,12,16	Sep 17
11.1	2,5	Oct 1
11.2	1,4,6	Oct 1
11.3	3,5	Oct 1
11.4	1,3,7,9,12,14,17,19	Oct 1
12.1	1,3,5	Oct 29
12.2	2,3,4,7	Oct 29
12.3	2,3,4,5,8,9,11	Oct 29
12.4	2,4,5,9,10,11,13	Oct 29
12.5	1,3,4,6,7	Oct 29
12.6	2,3,5,6,8	Oct 29
12.7	1,3	Oct 29
12.8	4,6,8,10,12	Oct 29
12.9	1,2,3,7	Oct 29
13.1	2,3,4,7,8	Nov 15
13.2	3,4,7,11,13,15	Nov 15
13.3	2,3,7,11,12,14,15,18,22	Nov 15
13.4	1,2,3	Nov 15
14.1	1,2,3,4,5,8,17,18	Dec 13
14.2	2,4,7,8,12	Dec 13
14.3	1,2,7,8,9,10,	Dec 13
14.4	1,4,5,6,7,8	Dec 13
14.5	2,3,4,5,8,9	Dec 13
14.6	1,2,3,5,6,8,9	Dec 13
14.7	1,4,5,6,7	Dec 13

### Homework Philosophy

I view homework assignments as *formative* assessments. Formative assessments are meant to give students feedback so that adjustments in learning can be made to improve learning outcomes measured in *summative* assessments (i.e. quizzes and exams). As such, I expect you to correct your own homework assignments before handing them in for credit. This arrangement gives you immediate feedback on your understanding of course content and the opportunity to correct your misunderstandings *before* grades are recorded.

### Homework Policies

- Homework must be done on quad-ruled, loose-leaf paper without frayed edges, done in pencil, be neat and legible, and submitted on Moodle as a PDF - apps such as Scannable allow you to convert pictures into PDFs. Homework will not be accepted otherwise, unless there are extenuating circumstances.
- Homework solution keys will be provided on Moodle. Use a colored pen to correct your homework and make notes to yourself. Your homework effort will only be counted if every problem has been attempted *and* corrected, so, leave a mark on every problem that has been corrected (even if the problem is correct) to communicate to me that you have completed the task.
- Corrected homework for each section is due at the start of the class period on the date indicated above. I do not accept late homework for any reason.