Math 13900 Mathematics for Elementary Education III Spring 2017

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Welcome to Mathematics for Elementary Education courses at Purdue!
Course goals are to prepare you to:

- Be a knowledgeable and confident math teacher in the elementary classroom
- Have a deep understanding of the reasoning behind math processes
- Be able to clearly articulate math ideas with correct vocabulary

Your future students will need to know more than how to find a number answer. You will often be asked to explain your thinking or describe the process you use to solve a problem. Be prepared to show step-by-step math work and to explain your thinking clearly. Homework, quizzes, and exams will be graded accordingly.

Learning Objectives:

1. Differentiate between various polygons based on number of sides and measures of angles.
2. Find the sum of the measures of the interior angles of a polygon.
3. Draw nets for polyhedra.
4. Differentiate between various types of polyhedra including all regular polyhedra.
5. Determine number of lines of symmetry for a plane figure and orders of rotational symmetry.
6. Determine number of planes of symmetry for a solid figure as well as axes of rotational symmetry.
7. Recognize and draw shapes that tessellate the plane and solid figures that tessellate space.
8. Determine dimensions of similar planar figures.
9. Determine surface area and volume of similar solid figures.
10. Construct perpendicular bisectors and parallel lines using a compass and straightedge.
11. Recognize and draw rigid motions of shapes including translations, reflections and rotations.
12. Determine area of plane figures and surface area and volume of solid figures.
13. Use the Pythagorean Theorem to determine diagonals of solid figures.

Textbook: Reconceptualizing Mathematics 2nd Edition by Sowder, Sowder, and Nickerson, W.H. Freeman, 2014.

- This book provides activities, discussion ideas, and questions that stimulate a deep level of thinking. We will use this workbook daily in class, and reading the section in the text before class is recommended to assist in achieving a high grade in the course.
- We will also use manipulatives to help us understand or demonstrate concepts. These manipulatives will appeal to different learning styles, and you may find them useful in clarifying ideas. Because it will be important to use them in your teaching for the benefit of your students, you will gain valuable experience using manipulatives in this course.

Homework: Homework is collected every class period. If you attend class without a completed homework assignment, please turn in a piece of paper with your name on it so that your attendance can be documented. Occasions arise to prevent students from attending class. Therefore, your 4 lowest homework scores will be dropped. You can arrange to have a classmate in your section turn in homework for you if you know you will be absent. If you miss class due to unforeseen circumstances, you may contact the instructor to see if you can deliver your homework in person before the late deadline. Neither early nor past deadline homework will be accepted by the instructor. Homework should be done neatly and with care, all steps must be shown, and multiple pages should be stapled. Correct answers without work or with incorrect work may not receive credit. The instructor will decide which problems or parts of problems will be graded by the grader. Only a few problems on each assignment will be graded. This means that sometimes the problems selected are the ones you have incorrect or they might be ones that you have correct. Homework papers may be collected before or after an opportunity to ask questions on the day it is due. This prevents students from relying too heavily on the question and answer time. Students are encouraged to attend office hours as a way of getting help with assignments.

Exams: Exams are intended to cover the ideas from the text but not to mimic the homework questions. Questions may require thinking or problem solving not represented by the homework questions.

- Exam 1: Tuesday, February 7, 2017 @ 8:00pm in SMTH 108.
- Exam 2: Tuesday, March 7, 2017 @ 8:00pm in SMTH 108.
- Exam 3: Tuesday, April 11, 2017 @ 8:00pm in SMTH 108.
- Put these dates and times on your calendar. Make-up exams will be given only if you have a valid excuse *with documentation* and Brooke Max has been notified prior to the exam. If you are unable to notify her prior to the exam, *a valid explanation with documentation for the missed exam must be provided*. Unexcused absence from an exam will result in a grade penalty.

Quizzes: Quizzes will be given frequently. It is wise to review recent lessons as a way of studying for quizzes. Two quiz scores will be dropped to allow for absences. No make-up quizzes are given. Class participation will count towards one quiz grade. Be prepared to volunteer your ideas during class discussions.

Attendance: Illnesses or circumstances that lead to excessive absences should be discussed privately with the instructor so that appropriate accommodations can be made. With 4 homework scores and 2 quiz scores dropped, that should account for the necessary absences in most cases.

Grading: Grades will be based on three (3) evening exams (100 points each), quizzes (100 points total), homework (50 points), and a comprehensive final exam (150 points). An instruction sheet for determining your grade is available on the web page. Note that a point on homework or quiz is not equivalent to a point for the course.

Last day to drop a course: Friday, March 10, 2017 @ 5:00pm.

Calculators: Another goal of the Mathematics for Elementary Education courses is to be competent doing arithmetic of whole numbers, decimals, fractions, and percentages by hand. Because of this, **No calculators are allowed on quizzes and exams.** Occasionally, a calculator will be useful for homework problems or in-class work. There will also be three quizzes given during the semester called "Arithmetic Skills Quizzes." To be prepared for those, a study guide is available on the course web page.

Cell phone use: Checking for messages and sending text messages is not appropriate during class time. Be polite and leave your cell phone alone during these 50 minutes. Using a computer during class time for reasons other than class materials is also not appropriate.

In the event of a major campus emergency, course requirements, deadlines, and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Information will be available at www.math.purdue.edu/MA13700. If a fire alarm sounds, leave the building immediately and collect by the fountain outside. You may dial 911 for a campus emergency.

During the last two weeks of the semester, you will be provided an opportunity to evaluate this course and your instructor. At that time, you will receive an official email from evaluation administrators with a link to the online evaluation site. Your feedback is vital to improving education at Purdue. I strongly urge you to participate in the evaluation system.

FOR STUDENTS CERTIFIED BY ODOS ADAPTIVE PROGRAMS:

If you have been certified by the Disability Resource Center (DRC) as eligible for academic adjustments on exams or quizzes, see http://www.math.purdue.edu/ada for exam and quiz procedures for your mathematics course or go to MATH 202 for paper copies.
In the event that you are waiting to be certified by the DRC, we encourage you to review our procedures prior to being certified.
For all in-class accommodations, please see your instructor outside class hours – before or after class or during office hours – to share your Accommodation Memorandum for the current semester and discuss your accommodations as soon as possible.