2015

MATH 212 Geometry and Measurement

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MATH 212: Geometry and Measurement – MCED
Wednesday 4:30-7:00
Spring 2015

Information
Instructor: Mrs. Sheila Doran
Office: 107 Hinkle
Phone: (513) 745-4244
e-mail: doran@xavier.edu (Make sure you DO NOT use dorans)

Office Hours: Monday, Wednesday & Friday 10:00-12:00
Others by Appointment

Loose-leaf textbook in Xavier bookstore includes MyMathLab access

Online Homework Requirement: MyMathLab access

Course Description
This course is designed as a mathematics course for middle childhood education majors. The goal of this course is to develop a deeper understanding of the concepts of middle school geometry and measurement through exploration with concrete and visual activities, group discussion, routine exercises, and problem solving experiences. A deeper understanding requires a development of mathematical knowledge and skills along with mathematical reasoning. It is not just the ability to "do middle childhood mathematics" but to understand the topic well enough to analyze student work and to recognize how to assist and challenge a middle school student to grow in their understanding. It is also being able to see the connections of middle childhood geometry and measurement to early childhood and high school geometry and measurement. The course will include the use of Sketchpad Explorer on the iPad.

**This course is a mathematics content course not a methods course. Therefore the focus is on the mathematics and not on teaching methods, although hopefully you will learn ideas for teaching within the study of the mathematics.

Course Student Learning Outcomes
As a result of this course, students will be able to:

1. Define, classify, and analyze properties of figures in the plane and in space.
2. Apply the process of measurement using units for length, area, volume, weight, mass, and temperature.
3. Generate and explain formulas for area and volume.
4. Explain the Pythagorean Theorem and apply it to methods of finding perimeter.
5. Analyze the rigid motion transformations of translations, rotations, reflections, and glide reflections, and design tilings of the plane using transformations.
6. Differentiate between reflection, rotation, point, and translation symmetry.
7. Use geometric constructions to develop properties of congruent and similar triangles.
8. Solve problems involving similar triangles.
9. Use the Sketchpad Explorer app to develop geometric properties.

Core Curriculum Student Learning Outcomes

This course fulfills the Mathematical Perspectives of Xavier’s core curriculum and aims to introduce students to the following Core Curriculum Student Learning Outcomes and characteristics of a Mathematical Perspectives course.

1a: Students recognize and cogently discuss significant questions in the humanities, arts, and the natural and social sciences.
   [Mathematics is also one of the humanistic disciplines, and it rests at the heart of both the natural and social sciences.]
2a: Students find, evaluate, and logically convey information and ideas in written and oral presentations.
2b: Students evaluate real-world problems using quantitative methods and arguments.

Characteristics of the Mathematical Perspectives course:

- Students engage mathematical ideas motivated by stimulating problems arising from the natural sciences, social sciences, or from within mathematics itself;
- Students explore these ideas through classroom activities and homework assignments that investigate how mathematical methods are used to solve these problems;
- Students consider questions designed to encourage reasoning about mathematical concepts and their relationships;
- Students formulate conjectures based on the results of their explorations and the intuitions they derive from their reasoning;
- Students explain their thought processes, justify the validity of their conclusions, and reflect on their thinking by means of oral classroom presentations and clearly written reports.

Grading

Your final grade will consist of 4 tests, 1 journal score, and 1 Assignment/Quiz/Project average as listed below.

| Test #1: | Chapter 9 – Geometric Figures | 14% |
| Test #2: | Chapter 10 – Measurement | 14% |
| Test #3: | Chapter 11 – Transformations and Symmetry | 14% |
| Test #4: | Chapter 12 – Construction and Congruence | 14% |
Daily Journals 10%
My Math Lab Assignments 10%
Graded Assignments/Quizzes/Projects 24%

No grades are dropped. No extra credit is available. Projects/Assignments not turned in on the due date will have points deducted from the score.

I always try to get tests graded and back by the next class period. Therefore, if a test is to be missed for an unavoidable reason, arrangements must be made beforehand to make it up **before** the next class period.

**Daily Journals**

It is generally acknowledged that reflective practice is important to the growth and development of beginning teachers. Reflective writing builds self-awareness of understanding, performance, and development in learning and teaching. Your journal is a daily writing (class days and any significant study days outside of class) of your personal reactions to your experiences during class (or study) meetings. It is not just a record of what was done in class. Think and reflect upon how your own understanding developed, how you felt about the work and why, problems, questions, and misunderstandings you had, how others (in group work) developed in their understanding, how you felt about your contribution to group work, etc. The journal writings should show evidence of thought and reflection. Access to the Daily Journal is on Canvas under Campus Pack Collab Space.

| Grading Scale   |  |
|-----------------|  |
| 92-100 = A      | 90-91 = A-          |
| 88-89 = B+      | 82-87 = B           | 80-81 = B-          |
| 78-79 = C+      | 72-77 = C           | 70-71 = C-          |
| 68-69 = D+      | 60-67 = D           | 0-59 = F            |

**Class Helpful Hints**

**How to Do Well in this Course**

- **Prepare for class** by reading the text and any other assigned reading, by working through the examples in the reading, and by preparing questions on the reading or assignments to bring to class.
- Do the homework assignments **early** so that you may ask for help before it is due.
- Ask for help early in the semester. Don’t wait until you are too far behind.
- Come in to my office with questions or problems on work done in class or on assignments.

**Attendance**
Attendance will be taken each class period either through the use of a sign-in sheet or by the instructor.

**Cell Phones**

Cell phones must be turned off and stored away during class. Cell phones must be stored away during tests. Bring a calculator other than your cell phone calculator.

**Academic Honesty**

Class policy for academic integrity listed below comes from the Xavier University Catalog entry on Academic Honesty. You may access the online Xavier Catalog at this web address:  
[http://www.xavier.edu/catalog](http://www.xavier.edu/catalog)

- All work submitted for academic evaluation must be the student's own.
- The direct and unattributed use of another’s efforts is prohibited as is the use of any work untruthfully submitted as one’s own.
- Penalties for violations of this policy may include one or more of the following: a zero for that assignment or test, an “F” in the course, and expulsion from the University.