Mathematics Department
University of Wisconsin Oshkosh

General Syllabus for
Math 211 Fundamentals of Geometry and Measurement for
Elementary and Special Education Programs

Course Description:

This course is an intuitive introduction to Euclidean geometry, motion geometry, and measurement. In this course we will *do* mathematics everyday, and we will discuss the mathematical work of teaching. This means that we will think about problems, conjecture, reason, and make arguments. We will learn to listen and evaluate the mathematical thinking of others. The content of this course is guided by the mathematics of the elementary school curriculum (in the areas of geometry and measurement) as described in the National Council of Teachers of Mathematics' document *Principles and Standards for School Mathematics* (*2000*).

Prerequisites:

Math 110 with a grade of C or better.

Description of Students Who Take the Course:

This is a required course for all students who are elementary education and/or special education majors. Elementary education students will also need to take Math 217: Data Exploration and Analysis.

General Goals and Objective for the Course:

Students in this course will:

- Create a variety of problem solving strategies;
- Use quantitative methods and symbol systems;
- Distinguish between, and effectively use, both inductive and deductive reasoning;
- Learn to make mathematical arguments to justify solutions, and come to understand, through logic and structure as opposed to another authority, when a solution is correct and complete;
- Communicate mathematics both orally and in writing using the language of mathematicians;
- Learn to listen, evaluate and respond effectively to the mathematical ideas of peers;
- Build connections among, and work with, a variety of representations;
- Understand children's models and the mathematical work of teaching;
- Gain an appreciation for the beauty and importance of mathematics.

Textbook and Other Required Materials Recently Used:

- *Mathematics for Elementary Teachers*, Bennett & Nelson (special printing of Chapters 9, 10, & 11);
- *Course Notes,* Szydlik & Seaman;
- Compass, protractor, scissors, and straightedge;
- Tracing and graph/grid paper

Description of Specific Content:

- Axiom systems
- Euclidean constructions
- Polygons
- Polyhedra
- Tessellations
- Symmetry
- Rigid motions
- Measurement

Variation by instructor:

Although this course has a common content syllabus across sections and course coordination occurs, teaching methodology and evaluation policies may vary. Evaluation may include quizzes, exams, a comprehensive final, group projects, and the collection of homework and problem write-ups. In addition, instructors of this course may make other project, reading, or writing assignments.

Students should consult the individual course syllabus for more information.

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