

**Mathematics Department  
University of Wisconsin Oshkosh**

**General Syllabus for  
Math 217 Data Explorations and Analysis**

**Course Description:**

This course is designed to introduce students to the basic concepts of probability, and to methods of gathering and interpreting data. Further, it is designed to facilitate the students' ability to communicate their understanding, so that they will be better prepared to teach these ideas to elementary school students. The specific content of the course is guided by the mathematics of the elementary school curriculum (in the area of data analysis and probability), as described in the National Council of Teachers of Mathematics' document *Principles and Standards for School Mathematics(2000)*.

**Prerequisite:**

Math 110 (Number Systems), with a grade of C or better.

**Description of Students Who Take the Course:**

This is one of three mathematics courses required of all elementary education students. (The other two are Math 110 and Math 217.)

**General Goals and Objectives 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:**

- *Data Exploration and Analysis: Course Materials for Math 217.*

Prepared by Professors Szydluk, Oktac and Collier.

- *Excursions in Modern Mathematics* by Tannenbaum and Arnold.

Published by Prentice Hall (the thin version edited by Jennifer Szydluk).

**Description of Specific Content**

- Ratios and proportions
- Counting
- Probability
- Simulations
- Sampling
- Data exploration (via graphs, summary statistics, etc.)
- The idea of inference
- The research literature on common misconceptions

**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.

**Last modified:** May 2006