I. COURSE DESCRIPTION:

MAT 215  Mathematics for Elementary School Teachers II  Fall 2003
Semester Hours: 1 or 3

Instructor:  Dr. J. Bauer
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Description:  Probability and data analysis, geometry, measurement, problem
solving, reasoning and proof.

The course meets requirements for the Elementary Education endorsement. The
one-hour course MAT 215 may be applied to the Mathematics endorsement.

Class Meeting Time/Place:  9:00-9:50 MWF, CS 101

II. COURSE COMPETENCIES:  The National Council of Teachers of Mathematics
(NCTM) has been instrumental in affecting a change in the content and the
means in which mathematics is taught at the K-12 level. This enhanced approach
to mathematics education began in 1989 when the NCTM first published
Curriculum and Evaluation Standards for School Mathematics. The NCTM has
since published Principles and Standards for School Mathematics (2000) (To be
referred to as Principles and Standards). Principles and Standards continues to
emphasize the need for the teaching of math to include:

• Logic and mathematical evidence as verification,
• Mathematical reasoning,
• Conjecturing, inventing and problem solving, and
• Connecting mathematics, its ideas and its applications.

Course Goals:  It is the course's intent;

A. to present mathematically correct material appropriate for elementary
teachers,
B. to use problem solving as an integral part of mathematics,
C. to provide opportunities for alternative forms for the teaching and the
learning of mathematics,
D. to develop writing skills and means for explaining and expressing
mathematics,
E. to increase the student’s ability to work independently and collaboratively on mathematics,
F. to introduce technology and apply it to the study of math, and
G. to provide a fundamental core of mathematics appropriate for elementary teachers.

III. INSTRUCTIONAL MATERIALS:


References:


Kendall and Marzano (1996). *Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education*. Mid-Continent Regional Educational Laboratory, Inc.: Aurora, CO.


**Recommended Equipment:** Fraction Calculator

IV. **COURSE OUTLINE:**

I. **Probability and Statistics**
   - Probability
   - Experiments and Geometric Probability
   - Probability Simulations
   - Odds and Expected Values
   - Counting
   - Statistical Graphs
   - Central Tendency and Variation

II. **Geometry**
   - Introduction
     - Basics
     - Polygons
     - Angles
     - Three Dimensions
   - Construction, Congruence and Similarity
     - Congruence Through Constructions
     - Congruence Properties
     - Constructions
     - Similarity
     - Cartesian Coordinate System
   - Measurement
     - Linear Measurement
     - Area
     - Pythagorean Theorem
     - Surfaces
     - Volume
   - Transformations
     - Translations and Rotations
     - Reflections and Glide Reflections
     - Dilations
     - Symmetries
     - Tessellations
V. COURSE REQUIREMENTS:

A. Student is expected to attend class.
B. Student is to contact instructor prior to planned absences.
C. Student will be given at least 4 unit exams and a comprehensive final.
D. No test shall be made up unless arrangements are made before the test is given.
E. The final must be taken at the time and place scheduled. (Tuesday, December 16 @ 1:00-3:00 PM)
F. Student will be assigned 2 journal article abstracts. Journal articles can be taken from reputable publications such as Teaching Young People Mathematics and the Mathematics Teacher. Both journals are available in the library.
G. No abstract will be accepted after its due date without an acceptable excuse.
H. Student is expected to work assignments in the text and be prepared to discuss them during the next scheduled class meeting. Assignments might be collected occasionally for grading.

VI. EVALUATION: Student may be evaluated on the basis of test scores, abstracts, homework, and attendance. Grades are determined on 10% intervals, i.e. the 90s are an A, the 80s a B, and ... Student will be given a comprehensive final. The student’s score will be based on the following: 60% on test scores, 20% on abstracts, 20% on homework, and borderline cases determined by attendance. The score received on the final by the student will be incorporated into the student’s score in the following manner;

- If the score on the final exam is higher than the student’s final class average then the final exam will count 50%.
- If the score on a final exam is the same or no more than 30 points below the student’s final class average, then the final will count 0%.
- If the score on the final exam is more than 30 points below the student’s final class average, then the final counts 20%.
- If the student does not take the final exam then a 0% will be averaged into the student’s score at 50%.
VII. WSC STATEMENT OF STUDENT RESPONSIBILITIES:

Wayne State College strives to develop students of a wide range of academic abilities through quality teaching and support. It is our desire to prepare students to accept the privileges, duties, and responsibilities of global citizens; to develop moral and ethical values; to encourage creative ability and develop aesthetic judgments; to encourage the ability to think critically about their world and work; and to promote competence in and understanding of fields of knowledge which required of educated people.

To this end we, the faculty and staff of WSC, have established a standard of student responsibilities in the following statement:

All students will:

Take responsibility for their education. This will include:

- Being knowledgeable of academic requirements and college policies concerning registration, academic standing, payment of tuitions and fees, withdrawal and graduation.
- Initiating communication with faculty, advisors and administration regarding questions, concerns and intellectual dialogue.

Cultivate an attitude of integrity both in and out of the class. Integrity is demonstrated by:

- Showing courtesy, dependability, honesty and respect for instructor expectations concerning attendance, assignments, deadlines and appointments.
- Showing courtesy and respect toward others with diverse points of view in and out of class.
- Displaying a positive work ethic and a genuine interest in welfare of others.