MA 495 Elementary Mathematics from an Advanced Perspective
Fall Semester 2008 Monday and Wednesday 4–5:30 p.m. WS 3616

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Office Hours: M and W 1:00 - 3:00; F 12:30 – 1:30; other times by appointment.

Course Description:

This capstone course for mathematics education students examines the mathematical foundations of fundamental concepts of arithmetic, algebra, geometry, number theory, and other topics from across the mathematics curriculum and the connections that unify those concepts. Emphasis is on thinking deeply about fundamental concepts while further developing students' mathematical reasoning, representation, and problem-solving abilities.

Prerequisites: Senior standing and instructor permission.
(This course fulfills the "mathematics elective" requirement for the mathematics education major.)

Text and Materials:

Text: Calvin T. Long, Duane W. DeTemple, and Richard S. Millman
Mathematical Reasoning for Elementary Teachers. Fifth edition (2009)

Materials:

- Compile a "mathematics tool kit" and bring it to class with you (as well as to wherever else you study). Include the following items:

Ruler	Scissors
Compass	Eraser
Protractor	Graph paper
Colored pencils	Unlined paper

- Be sure you have the following technology readily available:

  Graphing calculator
  Geometer's Sketchpad installed on your laptop
  Excel spreadsheet on your laptop

- Make sets of manipulatives for your own use now and for future classroom use when you teach. Many important manipulatives can be made using the cutting machine in the mathematics education classroom. Additional directions will be given in class. Examples of important manipulatives include pattern blocks, tangrams, pentominoes, models of regular polygons, and others of your choice (look over the available dies in the classroom).

Course Requirements:

- Attend all classes and participate actively in class discussions and activities.
- Complete assignments on time. Assignments are given on separate sheets.
- Develop the habit of *thinking deeply* about mathematical concepts and relationships; discuss the insights you have developed; raise questions about what you don't understand; and challenge each other to expand your individual and collective understanding, appreciation, and enjoyment of mathematics.

Tests and Exams:

There will be a midterm exam (date to be announced later) and a final. The final exam for this class is scheduled for Thursday, December 11, 4:00 – 5:50 p.m.

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office by: coming into the office at 2001 C. B. Hedgcock; calling 227-1700; or e-mailing disserv@nmu.edu. Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.