MA 495 Elementary Mathematics from an Advanced Perspective

Fall Semester 2006 Thursday 5–8 p.m. WS 3616

Course Description:

This capstone course for senior mathematics education or mathematics majors and minors 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 and Duane W. DeTemple
Mathematical Reasoning for Elementary Teachers. Fourth edition (2006)

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
  Compass
  Protractor
  Colored pencils
  Scissors
  Eraser
  Graph paper
  Unlined paper

- Make for yourself the following manipulatives using the cutting machine in the mathematics/science resource center. Additional directions will be given in class. Make at least all of the following:

  Pattern blocks
  Tangrams
  Pentominoes
  Models of regular polygons
  Other of your choice (look over the available dies in the resource center)

- Be sure you have the following technology readily available:

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

Course Requirements:

- Attend all classes and participate actively in class discussions and activities.
- Complete assignments on time. Assignments are given on separate sheets.

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 Tuesday, December 12, 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 at 2001 C. B. Hedgcock (227-1700; TTY 227-1543). 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.