

MATH 501 Technology in Mathematics for Teachers

Summer, 2009 (June 15 – 19 on campus, July 10 online)
meets 9:00 – 12:00 and 1:00 – 4:00 pm in room 305/306 of the Math Building.

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Course description:

The main purpose of this course is to explore the uses of technology (particularly computers) in the teaching of mathematics throughout the curriculum. This includes two responsibilities:

1. Participants will gain familiarity and depth with a variety of computer software packages that can be used to engage their students in mathematical investigations and problem explorations.
2. Participants will use computer software to organize classroom presentations and develop units of instructional material that could be used with their students.

Course Objectives:

Participants will be able to:

1. use application software to solve mathematical problems,
2. use application software to construct new mathematical ideas for themselves,
3. use simulations as a problem solving tool,
4. communicate mathematical ideas found in computer applications to others,
5. engage in mathematical explorations and investigations using computer software,
6. create mathematical demonstrations using computer software, and
7. create exploratory lessons for students that take advantage of computers.

Resources:

Technology-Supported Mathematics Learning Environments. NCTM, 2005.

Projects / Course Requirements:

There will be two types of projects:

1. The first type is a **short report**, which includes a presentation and a written page about a mathematical investigation that you did. The most important feature of a short report is that it communicates some mathematics that you have done and can share with others.
2. The second type is an **instructional unit**. This is a collection of material that would be used by your students to develop a mathematical idea. A unit should have specific goals for teaching a selected mathematical topic (or topics), and your students would be expected to take about 2 weeks to complete the unit.

It is expected that all students will become familiar with the following common software: Excel, Geometer's Sketch Pad, GeoGebra, and Maple. In addition, graphing calculators will be explored, selected computer software will be reviewed, and Internet sites for mathematics lessons will be examined.

A short report is required for each software package and one software review (total of 5 reports). One instructional unit is required. All of these will be presented in class and shared with other class members in electronic form.