MATH 501 Technology in Mathematics for Teachers

Online course, Summer, 2012 (June 11 – July 20)

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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 (e.g. GeoGebra, Geometer’s Sketchpad, Fathom, TinckerPlots, etc.) and online source 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:

1. Students will be required to purchase student version of a list of computer software packages (more information will be sent to students in early June).
2. Course reading materials will be sent to students through Moodle or email.

Course Assignment:

There will be three types of assignments:

1. The first type is a daily or weekly problems using specific computer software or online mathematics learning source.
2. A short report is required for each software package and online source (approximately 5 reports). One instructional unit is required.
3. The third 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.

All of the short reports and the instructional unit will be presented and shared with other class members in electronic form through the web conference.

This course will be mainly delivered via the moodle environment. Each student has access to moodle through the registration of this course. It is expected that all students will become familiar with the moodle learning environment and other technology such as skype. More detailed information on how to use moodle and skype will be delivered to students before or at the beginning of the course. The instructor will host online office hours regularly.