CI 401 M: Computer and Mathematics Education  
(The Role of Technology in the Secondary Mathematics Classroom)  

Fall Semester, 2008  
Wednesdays 12-2:50pm  
Location: 505 E. Green Street Room 201

Instructor: Adam Poetzzel  
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Office hours: By appointment (I am very flexible)  
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Course Description: Students enrolled in CI 436 will examine the role of technology in the secondary school mathematics classroom. They will build an awareness of current research and related trends in math education and gain experience developing and delivering technology intensive lesson modules.

Goals:  
This semester we will collaborate as we:  
1. Learn about major research issues and related trends in technology-based mathematics education.  
2. Gain experience using specific mathematical technological resources in mathematical contexts.  
3. Discuss and debate how and when to use technology effectively and appropriately in the classroom.  
4. Develop and deliver sample technology-based mathematics lessons.  
5. Gain greater mathematical understanding through problem posing and problem solving with an emphasis on reasoning, communication, connections, representation, and technology.  
6. Build a collection of effective tools and resources available on the Internet

General Course Requirements and Grade Breakdown:  
Our Course will have its own website on the main MSTE site. Each student will have their own folder to store and organize all of the required materials and assignments during the semester. The instructor will demonstrate how to use the class site and how folder should be labeled and organized.

10% Community Participation & Professionalism  
Attend every class on time. Actively contribute to large and small group activities and whole class discussion. Provide novel and positive insights into knowing oneself, mathematics, and varying contexts. Display an open mind with respect to strategies for teaching or student learning. Respond constructively to others' comments and classroom products.

10% Reading Presentation  
Working with a small group of students from this class, you will be responsible to provide an overview and lead a discussion covering one of the assigned course readings. You may present related materials outside of the assigned reading. The presentation should last approximately 30 minutes.
20% Technology Presentation
Working with a partner, you will design and deliver a technology-intensive lesson plan using an instructional technology introduced in a previous class session. The lesson should demonstrate the educational benefits of the technology in a mathematical context. The lesson should last approximately 30 to 45 minutes and may be broken into two smaller lessons if desired.

15% Internet Resource List
You will be responsible for building a web page on our class site that contains a list of Internet resources that you believe to be useful in building a deeper understanding in various areas of mathematics. A short description of the resource and its perceived value will accompany each link. A minimum of one resource should be added each week for the first 12 weeks. At various times throughout the semester, you will be asked to illustrate one of the resources on your site.

15% Reflections/Short Assignments
You will post a reflection/reaction after each reading assignment. At the conclusion of the semester, you will also post a personal philosophy on the role of technology in mathematics education. Other short assignments may be added through the semester.

30% Final Project and Presentation
You will develop a student-centered project that engages students with a technology that was explored during the semester. Several different technologies may be utilized and you are encouraged to design a project that could last for several class periods. You will present a portion of the assignment at the conclusion of the semester. The presentation should last approximately 30 minutes. This project may be done with a partner if approved by the instructor.

Additional information on each of the assignments will be provided throughout the course.

Readings:


Evaluation and Related Course Policies:

A core assumption of this course is that all enrolled participants will bring both an open mind and a critical attitude to their work. Openness in this situation refers to a willingness to consider the benefits of tools and instructional practices that may not have been utilized (or utilized poorly) in your secondary education experience, as well as to the capacity to find hidden opportunities in assignments, individuals, and settings whose parameters and/or apparent limitations were not expected. A critical attitude refers to the capacity to see both the strengths and weaknesses of practices and situations while still withholding judgment on them. It also refers to the capacity to evaluate and question one’s own assumptions and past experiences. Students whose comments, interactions with others, and written work display evidence of openness and a critical attitude will be favorably evaluated.

Another core assumption of this course is that all participants are responsible adults capable of interacting with each other in a professional and responsible manner; of being on time for class; and of being prepared. Late assignments will be accepted only with pre-approved consent of an instructor.
<table>
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<tr>
<th>DATE</th>
<th>CLASS FOCUS/MAJOR ACTIVITIES</th>
<th>READINGS (Tentative)</th>
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| 8/27   | INTRODUCTIONS/COURSE EXPECTATIONS  
- Examining Internet Resources | Reading: NCTM Technology Principle and Position Statement |
| 9/3    | EXPLORING DATA WITH TINKERPLOTS  
- Reading Discussion: Group A | Reading: Thinking and Talking About Technology in Mathematics |
| 9/10   | EXPLORING DATA WITH FATHOM  
- Reading Discussion: Group B | |
| 9/17   | GEOMETER’S SKETCHPAD  
- TinkerPlots Lesson: Group 1 | Reading: Habits of Mind |
| 9/24   | INTERNET RESOURCE SHOWCASE  
- Reading Discussion: Group C  
- Fathom Lesson: Group 2 | Reading: Calculators May Be The Wrong Answer |
| 10/1   | UTILIZING TI 83/84 GRAPHING CALCULATORS AND PROBES  
- Reading Discussion: Group D  
- GSP Lesson: Group 3 | |
| 10/8   | GETTING INSPIRED BY THE TI-NSPIRE CALCULATOR  
- Internet Based Lesson: Group 4 | |
| 10/15  | STUDENT RESPONSE SYSTEMS: THE TI-NAVIGATOR  
- TI 83/84 Lesson: Group 5 | Reading: Technology-Using Teachers |
| 10/22  | EXPLORING BELIEFS ON TECHNOLOGY USE  
- Reading Discussion: Group E  
- TI-Nspire Lesson: Group 6 | |
| 10/29  | FIELD TRIP TO CENTRAL HIGH SCHOOL (Tentative) | |
| 11/5   | SMART BOARD/SMARTVIEW  
- TI Navigator Lesson: Group 7 | Reading: Why I Gave Up Long Lectures |
| 11/12  | INTERNET RESOURCE SHOWCASE  
- Reading Discussion: Group F  
- Internet Based Lesson: Group 8 | Reading: Six Challenges For Educational Technology |
| 11/19  | LOOKING BACK; LOOKING AHEAD  
- TinkerPlots/Fathom Lesson: Group 9  
- TI Lesson: Group 10 | |
| 11/26  | FALL BREAK (No Class) | |
| 12/3   | FINAL PRESENTATIONS | |
| 12/10  | FINAL PRESENTATIONS | |
| 12/7   | FINAL PRESENTATIONS (Final Exam Period) | Philosophy of Technology Due |