MATH 301: Mathematics Technology for Teachers

Fall, 2012

Instructor: Ke Wu

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Office Hours: WF 10:00-11:00 am or by appointment
Class time/location: MWF, 9:10-10:00 am, Math Building room 306

Course Purpose: One goal of this course is to introduce you to a variety of technological tools that are useful in the mathematics classroom including the Internet, The Geometer’s Sketchpad (version 5), Fathom 2, TinkerPlots, TI-nspire CAS, Digital Camera, Microsoft Excel, and Microsoft PowerPoint. Appropriate uses of technology will be discussed as well as the role of the teacher in a lesson using technology. We will discuss appropriate and inappropriate uses of technology and develop methods to evaluate technological tools and activities.

The second goal of this course is to help you understand the modeling process, identify and solve problems involving continuous and discrete models and using simulation.

Textbook/Software: There is no textbook required for this course. You are required to purchase the following software: (1) The Geometer’s Sketchpad 5. You can purchase the single-student non-expiring license at $34.95 or 1-year license at $9.95 from the Geometer’s Sketchpad resource center: https://keydrm.keypress.com/v3/orders/new?product=gsp (2) Fathom 2. You can buy single-student non-expiring license at $34.95, or single-student 1-year license at $9.95 from https://keydrm.keypress.com/v3/orders/new?product=ftm. (3) There is another software, TinkerPlots Dynamic Data Exploration. You can purchase the single-student license at $24.95 or 1-year license at $7.95 from the Geometer’s Sketchpad resource center: https://keydrm.keypress.com/v3/orders/new?product=tp

Technology Assumptions:

• You should have access and be familiar with using a word processor.

• You should have access to a computer to run the software you purchased and you should also have access to the Internet. There are computer labs available for students here on campus.

Course Assignments:

1. Class attendance and Participation: You are expected to attend ALL the classes on the dates specified in each week on Moodle. Each class that
you will miss, 1% will be taken off up to 10% of your final grade. You are required to participate actively in all class discussions, work sessions, and individual and small group activities. Please also stay current on the readings. All work that you hand in should be new work that you have done since you have attended this course.

2. Assignments will be given each week

3. You will need to complete two projects.
   Project #1 (due on Sunday, 10/21)
   Topic (by Wed, 10/17): ____________________________
   Objective: _______________________________________
   Initials _________________________________________
   We have used a variety of technology tools in this course. Your goal is to design a one-day activity that uses technology to enhance student understanding of some topic. You should choose a topic you are interested.
   You are to write a description of the activity that could easily be followed by everyone else in this class. Write a cover sheet for the activity explaining the objectives and why your use of technology is effective. Please be prepared give a presentation of your lesson to the class during week 6 (Oct 1 – 5). You have 10 minutes for your presentation. You may adapt any activity that you have seen in class for this assignment.

4. Project #2 (due on Sunday, 11/25)
   Topic (by Wed. 11/14) ____________________________
   Objective: _______________________________________
   Initials _________________________________________
   This project is similar to Project #1 but you should create a three-day sequence of lessons that you design yourself. Make sure you have a description of your lessons and a cover sheet. You will present your project to the rest of the class during week 14/15 Nov. 26 – Dec. 7. The order of presentation is randomly selected.

5. Final Written test: On Monday of 12/10 8:00 – 10:00 AM. You will have a written test to reflect on your learning of the use of technology in classroom teaching.

Grading distribution and scale:
The grading distribution will be approximately as follow:

   Attendance -------------------------- 15%
   Weekly assignments ---------------------- 50%
   Projects ------------------------------- 25%
   Final Written test ---------------------- 10%

Grading scale:

   95 – 100%  A  90 - 94%  A-
   87 – 89%  B+  83 - 86%  B  80 - 82%  B-
   77 – 79%  C+  73 - 76%  C  70 – 72%  C-
Administrative Policies:

Important Dates: Students can add a course through CyberBear only until Wednesday, September 5. From then on, you need, for adding only, a paper form with the instructor’s signature. Students can still drop a course or change the grading option on CyberBear until September 17. Please note the implication: under Petitions and B below, changing a grade to Audit does not arise because it is not allowed after September 17.

September 18 through October 29, students must drop/add with a paper from that is signed by the student’s advisor and the instructor. Accepted reasons for a late drop are listed in the university catalog: reasons such as accident or illness, family emergency, or change in work schedule. The following examples are not considered sufficient: protecting the GPA, forgetting to turn in the change slip, losing financial aid, losing eligibility to engage in sports.

October 29 is the DEADLINE for students to drop/add a course, change sections, change grading option from Credit/No Credit to a letter grade (or vice versa), or change credit in a variable credit course. After October 29, a student is allowed to make these changes only by PETITION, which requires the instructor’s signature and recommendation. In case of drops only, the petition also requires the signature of the Dean of your major. This option ends on December 7.

Cell phones: No cell phone or i-pod use is allowed in class, either sending or receiving calls or text messages, or listening to music. Anyone whose cell phone goes off in class, or who is found texting will be required to bring treats to the next class!

Students with Disabilities: Please feel free to discuss accommodations with me. The UM assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). “Reasonable means the U of M permits no fundamental alteration of academic standards or retroactive modifications. Cases are dealt with individually. More information can be found at http://www.umt.edu/dss/.

Academic Honesty: All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

Student Conduct Code: All students need to be familiar with the Student Conduct Code. You can find it in the “A to Z Index” on the UM home page.