M501 Technology in Mathematics for Teachers

Summer 2018 (May 21 – June 29, 2018, online via Moodle)

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Course Description
The goal of this course is to learn a variety of technological tools that are useful in teaching and learning of mathematics in a 5-12 grade classroom such as GeoGebra, Microsoft Excel and Desmos. The focus of this course is to apply technology in modeling process (e.g. graphing, computing, simulation, fitting models, and organizing) in order to investigate and solve problems.

Text: No textbooks required. All readings will be provided.

Grading   30% Technology Learning Exercises
                 60% Investigations and Modeling Projects
                 10% Final Project

Technology Learning Exercises
You will go through tutorials to learn new technology and in general, there are exercises for you to complete at the end of tutorials. You will also read some articles and documents and write an annotated bibliography (150-25 words) for each of the readings.

Investigations and Modeling Projects
There will be three to five investigations and two modeling projects in the course. Each investigation will require you to utilize a particular technology to explore some fundamental mathematical problems. The modeling projects will provide an open and exploratory setting for you form questions, mathematizing contexts, using technology aid modeling/solving the problem, and interpret and answer your questions.

Final Project
The goal of your final project is use technology to investigate a math problem. This problem has been shared with a group of math teachers in the Montana Math Teachers' Circle and it created interesting discussions. It was provided by Nick Grener, a math teacher at Hellgate High School in Missoula MT. It's an open question that no-one has come up with answers yet. I am very curious about how you would approach this problem and use technology to assist the process of investigation.

A note about grading in this course: Each student in this class has different math content background, teaching experiences, and familiarity with technology. I appreciate each of you working hard in this course when you are working full time at school. Thus I do not have the

same "standard" of grading that apply to all students, instead, I grade you at your individual work and effort.

Grade Scale
90 – 100 A; 80-89.5 B; 70-79.5 C; 60-69.5 D; 0-59.5 F

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. All students need to be familiar with the Student Conduct Code. The Code is available for review online at http://life.umt.edu/vpsa/student_conduct.php.