Spring 2019: MAE 330/MAT 517

Calculators and Computers for Teachers

Instructor: Dr**.** Alaa Abd-El-Hafez
Class Time: Mon & Wed from 2:30 to 3:50 PM
Office Hours: Wednesday: 1:00pm – 2:00pm
Thursday: 1:00pm – 2:00pm
Other office hours TBA

Course Description: This s a 3-credit course designed to help students use technology in facilitating their instruction. Students will use *Latex* to create mathematical documents (eg., exams) and communicate mathematical ideas in writing. They will use *ActivePresenter and Prezi* to create math lesson plans and explain a given topic. Students will also create their own websites for use in teaching mathematics. *Geogebra* and/or *Geometers Sketchpad* will be used to create pedagogical demonstrations. Students will use a graphing calculator for computing and curve sketching and design a gradebook using Excel.

Material Required: A graphing calculator and a laptop with Latex and TexMaker, Geogebra, and ActivePresenter. All other materials will be posted on blackboard.

Grading:

- Presentations and Participation (20%)
- Assignments (35%)
- Quizzes (5%)
- Teach Your Peers Project (10%)
- Final Project (30%)

Presentations and Participation: Students must be prepared and on time. Lateness or leaving early, along with being unprepared in general, will result in a lowered participation grade. Cell phones and beepers should be silenced during class time. Use of personal email and text messaging during class will also result in a lowered participation grade. We are building a classroom community. As such, I require no outside work be done during class time. I reserve the right to view your laptop or smartphone if it is being used during class time. Points will be lost for any work not related to the immediate class discussion.

Assignments: All assignments will be posted on blackboard every Thursday in the *Assignments* folder. Assignments are to be written carefully, **stapled**, and submitted at the **beginning** of the lecture on Thursday of the following week. No late homework assignments will be accepted. A rubric will be provided for each assignment on blackboard.

Quizzes: There will be few unannounced quizzes in class over the course of the semester, based on the homework assignment and the lecture for that week.

Teach Your Peers Project: Students will think of new ways that technology can be introduced to the math classroom and demonstrate its use to their peers. Students may have up to an hour for their demonstrations. Some ideas may include an app on an iphone that may facilitate math instruction, surface pro, programming with Python, Introduction to Maple, Stat IC/13, KH Coder, etc. Topic must be approved before presentation. A rubric will be provided on blackboard.

Final Project: Students will use the tools and technology learned in this course, to create a math lesson plan on a topic of their choice to students in high school. The lesson plan:

a) Is geared to a high school audience and focuses on technology. (*6 points*)
b) Must be written in Latex (will submit pdf and tex files). (*4 points*)
c) Follows the lesson plan format attached. *(3 points)*
d) Requires students to utilize a graphing calculator or Geogebra. *(3 points)*
e) Has a 10-15 minute summary using ActivePresenter for absent students. *(6 points)*
f) Will be posted on your Weebly website and a hard copy will be provided on the 16th *(4 points)*

All students will give a 15 minute presentation on their lesson plan. *(4 points)*

Academic Dishonesty: Cheating, copying, and other dishonesty will not be tolerated under any circumstances. Students engaging in such acts will be reported immediately to Academic Judiciary.

Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, and/or inhibits students' ability to learn.

DSS advisory: If you have a physical, psychological, medical, or learning disability that may affect your course work, please contact Disability Support Services (DSS) office: ECC (Educational Communications Center) Building, room 128, telephone (631) 632-6748/TDD. DSS will determine with you what accommodations are necessary and appropriate. Arrangements should be made early in the semester (before the first exam) so that your needs can be accommodated. All information and documentation of disability is confidential. Students requiring emergency evacuation are encouraged to discuss their needs with their professors and DSS. For procedures and information, go to the following web site http://www.ehs.sunysb.edu and search Fire safety and Evacuation and Disabilities.

The following is a tentative course outline and will be updated as needed.

Week 1: Beginning January 28: **Syllabus, Go-to-Meeting, Microsoft word editor, and Introduction to Latex**

Week 2: Beginning February 4: **Creating H.W, worksheets, and exams using Latex**

Week 3: Beginning February 11: **Introduction to Geogebra and curve sketching**

Week 4: Beginning February 18: **Proving using Geogebra**

Week 5: Beginning February 25: **Using Geometers Sketchpad**

Week 6: Beginning March 4: **Desmos and programming using graphing calculator**

Week 7: Beginning March 11: **Using Prezi in creating a math lesson**

Week 8: Beginning March 18: Spring Recess

Week 9: Beginning March 25: **Using Screencast-o-matic and Active Presenter to create videos**

Topic for the final project is due Monday, March 25th along with the supporting Common Core Standards.

Week 10: Beginning April 1: **Using Edpuzzle to make a video the lesson.**

Week 11: Beginning April 8: **Developing a website and Using Excel**

Week 12: Beginning April 15: **Catch-up and Teach Your Peers project**

Week 13: Beginning April 22: **Teach Your Peers project**

Week 14: Beginning April 29: **Educational use of the world wide web (Illuminations, Pearson teacher resources, limservice.com, etc)**

Week 15: Beginning May 6: Presentations of Final Projects.

****Final Exam is scheduled for Tuesday, May 14 at 5:30 pm.**

Lesson Plan Template

Learning Objective(s):

New York State Common Core Standards:

Materials:

Warm Up:

Development/Procedure:

Closure:

Assignment (Homework):