

Spring 2021

MAT 517: Calculators/Computers for Teachers

MAE 330: Technology in Math Education

Instructor: Dr. Alaa Abd-El-Hafez

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Class Time: M & W 2:40 – 4:00 PM

Office Hours: Tuesday: 1:30 – 2:30 PM

Wednesday: 1 – 2 PM

Thursday: 4:30 – 5:30 PM

Office hours will be on Zoom. The link is:

<https://stonybrook.zoom.us/j/8189776222>

Course Description: This is 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.

This course will be delivered online on zoom during the same/day time the class is scheduled to meet. Class maybe recorded.

Here are the instructions:

- 1) Go to *blackboard*, click on “Zoom Meeting”
- 2) You may have to download the “pop-ups” if this is your first time using Zoom.
- 3) Done! You are in class.
- 4) You must have headphones.

Materials Required: A working laptop with a camera and a microphone for participation.

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. Laptop cameras must be on at all times on Zoom. Students are expected to ask and answer questions during class as well as participate in all classroom activities.

Assignments: All assignments will be posted on blackboard every Monday in the *Assignments* folder. Assignments are to be written carefully and emailed to alaa.abdelhafez@stonybrook.edu at the **beginning** of the lecture on Monday 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 45 minutes 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, Google Classroom, Voicethread, 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. (4 points)
- b) Must be written in Latex (will submit pdf and tex files). (4 points)
- c) Follows the lesson plan format attached. (4 points)
- d) Requires students to utilize a graphing calculator or Geogebra. (4 points)
- e) Has a 10-15 minute summary using ActivePresenter for absent students. (6 points)
- f) Will be posted on your Weebly website (4 points)

All students will give a 30 minute presentation on their lesson plan. (4 points)

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

Week 1: Beginning February 1st: Syllabus and introduction to Latex

Week 2: Beginning February 8th: Creating H.W, worksheets, and exams using Latex

Week 3: Beginning February 15th: Desmos

Week 4: Beginning February 22nd: Proving using Geogebra and curve sketching

Week 5: Beginning March 1st: Introduction to Geometers Sketchpad and programming using graphing calculator

Week 6: Beginning March 8th: Using Prezi, Powtoons, and OneNote in creating a math lesson

Week 7: Beginning March 15th: Using Screencast-o-matic, Active Presenter, and ExplainEverything to create videos

Week 8: Beginning March 22nd: Using Edpuzzle

Topic for the final project is due Monday, March 22 along with the supporting Common Core or Next Generation Standards.

Week 9: Beginning March 29th: Teach Your Peers project

Week 10: Beginning April 5th: Educational use of the world wide web (Padlet, FlipGrid, Whiteboard.fi, Gradescope, etc)

Week 11: Beginning April 12th: Educational use of the world wide web (Padlet, FlipGrid, Whiteboard.fi, Gradescope, etc)

Week 12: Beginning April 19th: Developing a website and using Excel

Week 13: Beginning April 26th: Nearpod

Final project is due Monday, May 3rd

Week 14: Beginning May 3rd: Catch-up and presentations of Final Projects.

****No Final Exam for this class.**

Student Accessibility Support Center Statement

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or via e-mail at: sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Academic Integrity Statement

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

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 University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Lesson Plan Template

Learning Objective(s):

Standards:

Materials:

Warm Up:

Development/Procedure:

Closure:

Assignment (Homework):