

Spring 2024

MAT 517: Calculators/Computers for Teachers

Instructor: Dr. Alaa Abd-El-Hafez

Email: alaa.abdelhafez@stonybrook.edu

Class Time: M & W 2:30 – 3:50 PM

Office Hours: Monday: 4 – 6 PM

Wednesday: 6:50 – 7:50 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.

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

Grading:

- Presentations and Participation (15%)
- Assignments (40%)
- Quizzes (10%)
- Teach Your Peers Project (10%)
- Final Project (25%)

Letter grades will be assigned as follows:

A 95-100; A- 90-94; B+ 86-89; B 83-85; C+ 75-78; C 71-74; C- 67-70; D+ 62-66; D 58-61; F 0-57

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. 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. One point will be deducted each day for lateness. 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 25 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, Open AI, 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 and the plan is detailed. (6 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 (3 points)

All students will give a 25 minute presentation on their lesson plan. (4 points)

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

Week 1: Syllabus and introduction to LaTeX

Week 2: Creating H.W, worksheets, and exams using LaTeX

Week 3: Desmos

Week 4: Proving using Geogebra and curve sketching

Week 5: Nearpod

Week 6: Using Prezi, Powtoons, and OneNote in creating a math lesson

Week 7: Using Kami and Screencastify

Week 8: Using Screencast-o-matic, Active Presenter, and ExplainEverything to create videos

Week 9: Using Edpuzzle

Topic for the final project is due Monday, March 18th along with the supporting Common Core or Next Generation Standards.

Week 10: Teach Your Peers project

Week 11: Educational use of the world wide web (Padlet, FlipGrid, Whiteboard.fi, Gradescope, Open AI, Canva, etc)

Class on April 10th will be on Edpuzzle, not in person

Week 12: Educational use of the world wide web (Padlet, FlipGrid, Whiteboard.fi, Gradescope, Open AI, Canva, etc)

Week 13: Developing a website and using Excel

Final project is due Monday, April 29th

Week 14: 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):