

STEP Summer 2020 Academy

Overview of Calculus

Instructor: Dr. Alaa Abd-El-Hafez

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TA: TBA

Class Time: M-TH 8:30-10:10 am

Classroom: On Zoom (access from blackboard)

Office Hours: Will be on Zoom: <https://stonybrook.zoom.us/j/8189776222>

Prerequisite: Level 3 or higher on the placement test.

Course Description: This is a three-credit course designed to help students acquire a sound knowledge of calculus and its applications. Students will explore the properties and applications of polynomial, exponential, and logarithmic functions. Derivatives: slopes, rates of change, optimization, integrals, area, cumulative change, and average; the fundamental theorem of calculus. Emphasis on modeling examples from economics.

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.

Textbook, homework, assessments, and notes will be posted on Lumen OHM.

Lumen OHM Student Log in:

<https://ohm.lumenlearning.com/>

Course ID: 43390

Enrollment Key: *Leave Blank*

Required resources: A laptop with a working camera and headphones.

Grading:

- Homework (25%)
- Participation (5%)
- 5 Quizzes (10% each)
- Final Exam (15%)
- Warm up and Exit tickets (5%)

Homework: Videos and/or exercises will be assigned for homework. Students must watch the assigned videos before coming to class on <https://edpuzzle.com/join/jakrewlo>. Exercises will also be assigned daily on [Lumen OHM](#). **No late homework will be accepted.**

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.

Quizzes: Quizzes will take place on [Lumen OHM](#) via Zoom. Students will be asked to share their screens and cameras while taking a quiz. Make-up quizzes will not be given under any circumstances. If a quiz is missed due to a documented emergency, the final exam grade will back fill in as the grade of the missed midterm. Quizzes will be given every Thursday.

Final Exam: Cumulative! Last day of class. Final exam will take place on [Gradescope](#) via Zoom. Students will be asked to share their screens and cameras while taking the exam. Once students are done, they will take a pic of their exam as pdf (one app to use is CamScanner on iphone) and upload it to Gradescope. If the final exam is missed due to a documented emergency, an Incomplete will be given as the course grade and you must make arrangements to make up the final.

Warm up and Exit Tickets: Warm up tickets are five minute assessments at the beginning of lectures and Exit tickets are five minute assessments at the end of lectures. Exit tickets are designed to see if students are paying attention during the lecture while Do Now tickets are designed to see if students understood the homework problems and previous lectures. These tickets might be announced or **unannounced** and only one ticket will be dropped. Tickets will be given online on Zoom and students will be asked to share their screens and cameras while completing the tickets.

Americans with Disabilities Act: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, Room 128, (631)632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. <http://studentaffairs.stonybrook.edu/dss/index.html>.

Academic Integrity: 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/

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.

The following is a tentative course outline:

Week 1:

- Rational, algebraic, power, exponential, logarithmic, and trigonometric functions
- Limits and Continuity

Week 2:

- Average Rates of Change
- Differentiation
- The Power, Sum-Difference Rules, Product, and Quotient Rules
- The Chain Rule

Week 3:

- Implicit Differentiation and Related Rates
- Maximum and Minimum Values
- Sketching functions

Week 4:

- Optimization Problems
- Exponential and Logarithmic Functions
- Applications: Growth models, decay, annuities, and Amortization

Week 5:

- Antidifferentiation
- The Definite integral
- The Fundamental Theorem of Calculus

Week 6:

- Average Value of a Function
- The Substitution Rule
- Review

******Final Exam*