MATH 125 – CALCULUS I

Fall 2023

1 Course Info

Instructor: Abhishek Balakrishna
Office: KAP 416B
Email Address: ab45315@usc.edu
Lectures : MWF, 11 - 11:50 a.m. at DMC 152
Office Hours: MWF 1pm - 2pm

Course Description: (4 units) Limits; continuity, derivatives and applications; antiderivatives; the fundamental theorem of calculus; exponential and logarithmic functions, corresponding to the material up to Section 5.5 (inclusive) in the text.
Prerequisites: Math 108

Discussion : TTh, KAP 166, see your class schedule for the specific time.

Teaching Assistant: Rundong Ding
Email Address: rundongd@usc.edu
Office Hours: Math Center Schedule

Text Book: Essential Calculus (second edition), by James Stewart.

Contacting each other: I will be contacting you using Blackboard's email feature which will send an email to your UMBC email account so please check your emails frequently. You can contact me by directly sending an email to ab45315@usc.edu. I will try to respond to emails within *24 hours*.

2 Testing and Grading Policy

The grading chart is as follows:

Assignment	Percentage of the Final Grade
Homework	15%
Quizzes	10%
2 Midterm Exams	40%
Final Exam	35%
Total:	100%

3 Homework, Quizzes, and Exams

Homework: There will be regularly assigned homework sets typically due on Tuesdays. They will be posted on Blackboard under "Assignments". The homework exercises are chosen to prepare you for midterms andthe final, and these problems may also appear on the weekly quizzes. You are welcome (and encouraged) to work with other students in class on the homework, but you should submit your own work. You may also ask questions about the homework in office hours or discussion section. The lowest homework score will be dropped.

Quizzes: There will be quizzes each Thursday at the end of discussion section (except possibly in an exam weeks). The purpose of the quizzes is to prepare students for taking the midterms and final. There are no make up quizzes, but the lowest two quiz scores will be dropped.

Exams: Subject to current university policies, all exams in this class will be held **IN PERSON** during the scheduled time. If you cannot be present, you must contact me **BEFORE** the exam date to make other arrangements. If you no-show for an exam and attempt to contact me afterward, do not expect to be allowed a make-up exam.

There are three exams in this course: two midterms and a final. The two midterms will be held during normally scheduled class times. The final will be cumulative and written by the Math Department. It is university policy that no student may take the final exam early, or be allowed to skip it.

4 Course Calendar

We will cover the following sections of your textbook, on roughly the weeks listed. This calendar is tentative.

Week 01: Introduction, Functions; Sections 1.1 – 1.2.

Week 02: The Limit of a Function, Calculating Limits; Sections 1.3 – 1.4.

Week 03: Continuity, Limits Involving Infinity; Sections 1.5, 1.6.

Week 04: Derivatives and Rates of Change, The Derivative as a Function; Sections 2.1 – 2.3.

Week 05: Derivative Rules, Implicit Differentiation; Sections 2.4 – 2.6.

Week 06: Related Rates; Sections 2.7, Exam 1 Friday, 9/29.

Week 07: Linear Approximation, Max/Min problems; Section 2.8, 3.1

Week 08: The Mean Value Theorem, Derivatives and Shapes of Graphs; Sections 3.2, 3.3

Week 09: Curve Sketching, Optimization Problems; Sections 3.4, 3.5 .

Week 10: Newton's Method, Antiderivatives; Section 3.6, 3.7 .

Week 11: Areas and Distances, The Definite Integral, Evaluating Definite Integrals; Sections 4.1 – 4.3.

Week 12: The Fundamental Theorem of Calculus, The Substitution Rule; Section 4.4 – 4.5.

Week 13: Inverse Functions; Section 5.1 Exam II Monday .

Week 14: Log Functions and Exponential Functions; Sections 5.2 – 5.3. No Class on Friday

Week 15: General Log and Exponential Functions, Exponential Growth and Decay; Sections 5.4 – 5.5.

FinalsWeek: Final Exam Wednesday, December 6, 11 a.m.-1 p.m.