CALCULUS I - 22862 - MATH 181 - 2HD

1 General Information

Instructor Information

Name: Rebin Muhammad **Office:** HT (High Technology and Science Center) / Room 223
E-mail: Rebin.Muhammad@montgomerycollege.edu **Office Phone Number:** 240-567-1931

Office Hours:

You can come to my office at the following time, or send an e-mail to make an appointment.

Monday	**Tu**esday	**W**ednesday	**Th**ursday	**F**riday
12:30 pm - 1:30 pm	12:30 pm - 1:30 pm	12:30 pm - 2:30 pm	12:30 pm - 2:30 pm	12:30 pm - 2:30 pm

Class Meeting Times and Room:

HT (High Technology and Science Center 404)

Monday	**W**ednesday	**F**riday
11:00 am- 12:25 pm	9:11:00 am- 12:25 pm	11:00 am- 12:25 pm

2 Course Information

Welcome! to Calculus I! This is a first course in calculus and analytic geometry with applications in the sciences and engineering. It includes basic techniques of differentiation and integration with applications including rates of change, optimization problems, and curve sketching; includes exponential, logarithmic and trigonometric functions. Requisites for this course are A grade of C or better in MATH 165, appropriate score on mathematics assessment test, or consent of department. Assessment levels: ENGL 101/101A or AELW 940, READ 120 or AELR 930.

Students will develop conceptual understanding of the course material in an inquiry-based classroom, which includes a lot of independent work, daily group work, and class discussions. There will be very little traditional lecture. At the end of the course, students should be able to use the tools of differential and integral calculus in a variety of applications.

Mathematics can be fun and challenging at the same time. EVERYONE can learn math to the HIGHEST LEVELS. There is no such thing as a "math person." With hard work, you can reach the highest levels you want to reach. Failure and struggle are essential aspects of math and learning – these do NOT mean you can't do math. Mistakes are valuable and welcomed – every time you make a mistake, your brain actually grows!! This class is about learning, not performing. Math is a growth subject: it takes time to learn, and it is all about EFFORT! As this is a four credit hour course, you should expect to spend at least 8 hours a week outside of class reading the textbook, studying, doing previews/homework, and meeting with a tutor or me or your coach when you have questions... it is essential that you always ask any questions that you have!!! Mathematics is about creativity and making sense. It is important to go deeper than just being able to mimic the solution to a problem... you need to understand why the solution works! Depth is much more important than speed... think slowly and deeply. Creativity is important because there are often

different paths to a solution, and you get to create those solution paths that others can explore, discuss, and critique. Mathematics is connected and coherent as a subject, and is all about communication. You can communicate your mathematical ideas in a variety of ways – words, pictures, graphs, equations – and link them all together!!

Hate, racism, sexism, and other forms of discrimination have no place in my classroom, on this campus, or in our society. Our class is one community. We learn together. We work together. And we will respect one another. I teach all students, regardless of background or beliefs. All students are equally welcome and valued. No one is being asked to leave the table. Everyone is being asked to make room at the table, so that everyone has a seat and a fair chance.

Textbook and Supplies:

- **Single Variable Calculus: Concepts and Contexts (5th edition)**, by James Stewart, Brooks-Cole, 2022.**You do not need to purchase a hard copy of this textbook as it comes with the online homework system as an e-book**.
- WebAssign (Required): an online course/homework system. We will use an enhanced version of WebAssign that is customized to work specifically with our textbook, and even includes an e-book of the textbook. You can purchase WebAssign access directly from www.webassign.net or from the publisher at www.cengagebrain.com.
- **Active Calculus (Boelkins)** Chapters 1 – 4. This book is available free online: `https://activecalculus.org/single/` or as a PDF: `https://scholarworks.gvsu.edu/books/18/`.

Course Description:

MATH 181 is intended primarily for students of the physical sciences, engineering, and mathematics. An introduction to major ideas of single variable calculus including limits, derivatives, and integrals of algebraic and transcendental functions; applications.

Section Covered:

The course will cover sections 2.1-2.7, 3.1-3.9, 4.1, 4.2, 4.3, 4.4, 4.6, 4.7, 4.8, 5.1-5.4, plus selected topics.

Learning Objectives:

A full list of the learning objectives for this course may be found online at

`https://catalog.montgomerycollege.edu/preview_course.php?catoid=8&coid=10019`

3 Course Policies

Attendance:

Exploration, collaboration, and communication in class are essential for this course. Therefore, regular attendance and active participation are mandatory in this course. You are expected to be on time and stay in class for the entire 85 minutes or you will be counted absent, unless there is an emergency.

Calculators:

The calculator is not required for this course but, all these calculations can be done online with the free graphical calculator Desmos.com.

Makeup Exams:

Students that provide a valid excuse at least 24 hours before an exam other than the final exam will be permitted to take a rescheduled alternate version of the in-class portion of the exam. In all other cases, makeup exams will be given at the instructor's discretion only.

4 Grading Scheme

WebAssign Homework:[10%]

Homework is intended to help students understand the material and to prepare for exams; in particular, it is the basis for the common final exam. Practicing problems is crucial to doing well. Answers to problems are available after the due date for each assignment. Calculator use will not be permitted for quests/final exam, so I suggest that you not use a calculator for your homework. Homework problems on WebAssign for each section will be due regularly, and will be graded. You have as many attempts as you like, however, if you can't eventually do the problems on your own the first time, then you need to do more work. Access on BB: Due dates listed in WebAssign.

Group Work: [5%]

Every Day you will have a Group Work in which you will engage in group work that will be graded. Group Work are mandatory. Group Work is considered a continuation of class – you will learn new material based on the previous day's material. Group Work work will sometimes require work outside of class. For all graded Group Work assignments, each group will turn in ONE solution paper for the entire group and all group members will receive the same grade. Each member of the group should contribute equally to the group work. If there is disagreement on a solution that cannot be resolved within the group, please speak with your recitation leader about submitting dissenting opinions. Group work will always be due the next immediate class day.

Reading Material: [5%]

At the start of the semester, students will given a choice to choose one of these two books:

1. Change Is the Only Constant: The Wisdom of Calculus in a Madcap World by **Ben Orlin**.
2. Infinite Powers: How Calculus Reveals the Secrets of the Universe by **Steven H. Strogatz**.

and will pick one of them and write a paper about a part (chapter?) of that book. Students may need to make a presentation about the paper. During the semester, it's required students to give progress related to that assignment (such as which book they pick, which section? how the writing going? etc). The deadline for the paper is **December 5**.

Quest:[50%]

There will be 4 in-class quests (bigger than a quiz and smaller than a test), tentatively scheduled for **Sep. 16, Oct. 7, Nov. 4, and Dec. 2**. Quests will be taken individually. Calculators are NOT permitted on quests. NO make-up quests will be given.

Quiz:[10%]

There will be a weekly Quiz (expect for weeks that we have Quest). The quiz will happen during the first 10 minutes of each **Friday**.

Final Exam: [20%]

The final exam will be held on **Monday Dec. 14 10:15am-12:15pm**. This exam will cover material selected throughout the course. The final exam will be worth 20% of the student's final grade.

Grading Scale:

The following table maps scores to letter grades. More precisely, if a student's total weighted score is in one of the intervals, the student is guaranteed to receive not less than the corresponding letter grade. The letter grade a student receives may be higher than that indicated by the table, but is never lower.

$[90, \infty)$	—	A
$[80, 89)$	—	B
$[70, 79)$	—	C
$[60, 69)$	—	D
$(-\infty, 60.0)$	—	F

5 Additional Information

Academic Dishonesty:

Academic integrity is critical for students and instructors alike. Being responsible for your work, attendance, and conduct is everyone's duty. Every student is expected to adhere to the Montgomery College Student Code of Conduct. Academic Dishonesty, including dishonesty in assignments or examinations (cheating) and presenting the ideas or the writing of someone else as your own (plagiarism), will not be tolerated. All work must be done by you (or your group for group work assignments). You may use any help that you can find for ungraded work done outside of class, but keep in mind that the purpose of all work is to develop your ability to do such problems on your own. The quests and final exam must be your own work, completed without the aid of books, notes, calculators, phones, etc. Dishonesty will result in a zero on that work, possible failure in the class, and a report to the university judiciaries..

Disability Support Services:

Any student who needs accommodation due to a disability should make an appointment to see me during my office hours. In order to receive accommodations, a letter from Disability Support Services (G-SA 189; R-CB 122; or TP/SS-ST 122) will be needed. Any student who may need assistance in the event of an emergency evacuation must identify to the Disability Support Services Office; guidelines for emergency evacuations for individuals with disabilities are found at: http://cms.montgomerycollege.edu/edu/secondary5.aspx?urlid=52 . Browse Aloud is an easy-to-use screen reader that can be downloaded for free from the MC homepage at www.montgomerycollege.edu or http://www.browsealoud.com/page.asp?pg$_i d = 80096$.

Additional Resources: Additional terms of the syllabus can be found at:

$$http://cms.montgomerycollege.edu/mcsyllabus/$$

MAPEL Center

This is where students can get tutoring and other resources:
https://www.montgomerycollege.edu/academics/support/learning-centers/mapel-center-germantown/index.html

Taking Care of Yourself

As you are well aware, we will be having class this semester while trying to navigate a global pandemic that seems to change every day, take care of your own physical and mental health during these difficult times.

Make sure you are getting sufficient rest, staying connected to friends and family, and giving yourself time and space to do things you enjoy outside of college. This website lists several good tips for maintaining good self-care in our situation.