

SYLLABUS

MATH 160-04 Calculus I

Fall 2018

INSTRUCTOR INFORMATION

Instructor:	Dr. Menassie Ephreml
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Office Hours:	MWF 10:15 – 12:00, 1:30 – 2:45 <i>and by appointment</i>
Course webpage:	ww2.coastal.edu/menassie/math160/

COURSE DESCRIPTION

Prerequisite:	MATH 130 or MATH 130I and a grade of C or better in MATH 131, or a grade of C or better in MATH 135, or by Mathematics Placement.
Textbook:	<i>Calculus Volume 1</i> by OpenStax (Purchase a copy from the bookstore or download for free here: https://openstax.org/details/books/calculus-volume-1), and <i>Calculus I</i> by Andrew Incognito: https://ximera.osu.edu/math
Math Outreach:	There will be several math professors all around the campus holding outreach hours for your help. Weekly schedule has been posted on course webpage.
Course Topics:	Limits, continuity, differentiation and integration of algebraic and transcendental functions, applications of the derivative to curve sketching, optimization and related rates.
Course Objectives:	We will develop the basic tools of calculus - limits, derivatives and integrals - and learn how to apply them to a variety of problems. We will see how calculus can help us understand the behavior of functions and their graphs, the relationship between average and instantaneous rates of change, and the interplay between distance, velocity and acceleration. We will solve problems of optimization, related rates, and linear approximation. As the course progresses, you will develop a conceptual understanding of calculus and general critical thinking skills which will allow you to understand and solve many new types of problems with confidence.

Tutoring Help: You can get free tutoring in the Mathematics Learning Center. Visit their webpage (<https://www.coastal.edu/mathcenter/>) for hours and location.

Exams: There will be three 50-minute exams and a cumulative final exam. The **tentative** dates are as follows.

Date	Exam	Sections
October 03 (Evening)	I	2.1, 2.2, 2.3, 4.6, 2.4, 3.1, 3.2
November 01 (Evening)	II	3.3 – 3.9, 4.1, 4.2, 4.3–4.5
December 03 (Evening)	III	4.7, 4.8, 4.10, 5.1– 5.7
December 11 (8:30-10:30AM)	Final	all above

Note: Exam dates are subject to change. Make-up exams will be made solely at my discretion. If you know ahead of time that you must miss an exam, you must let me know at least two class periods in advance.

Homework: The best way to learn calculus is by solving problems. A selection of homework problems will be assigned and collected once a week for grading. You are encouraged to discuss homework problems with classmates. However, you are expected to individually write up your solutions, and you are responsible for your own understanding of the material. Absolutely no late homework will be accepted.

Quizzes: I will give short quizzes frequently throughout the semester. You can prepare for the quizzes by reviewing class notes and solving homework problems. At the end of the semester, I will drop one of your lowest quiz grades. There will be absolutely no make-up quizzes.

ALEKS: Five percent of your final grade can be earned by completing the ALEKS prep course for Calculus with limits. Please watch the instructional video for signing up for this prep course found on your moodle Calculus I link. Of these five percentage points, **one percentage** can be obtained by completing the diagnostic test no later than **11:59 PM on Monday, August 27**. **Two percentage** points can be obtained by completing 60% of the module by **Sunday, September 9 at 11:59 PM**. The final **two percentage** points will be awarded by completing 80% of the module by **Friday, October 12 at 11:59 PM**.

Calculator: While a graphing calculator is not required for this course, you may find one to be useful. No calculator of level TI 89 or higher (or calculator that can do symbolic manipulation) is allowed for any exams or quizzes. If you have questions about your calculator please let me know. Cell phones and tablets are not an acceptable substitute for a calculator and will NOT be allowed.

Grade Guidelines: Aleks, Homework, and Quiz = 15%, 3 Tests= 60%, Final= 25%

Note: if you make less than a 50 on the final, then the highest grade you can make in MATH 160 is a D+.

Grade Scale:

A: 90–100	B+: 87–89	B: 80–86	C+: 77–79
C: 70–76	D+: 67–69	D: 60–66	F: below 60

Important Dates:

Monday, September 03	Labor Day holiday - No classes
Friday, October 05	Student Holiday - No classes
Thursday, November 15	Last day to drop with grade of “W”
Tuesday, November 06	Election Day, Student Holiday - No classes
November 19 - 24	Thanksgiving Break

Students with Disabilities: Coastal Carolina University is committed to equitable access and inclusion of individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals seeking reasonable accommodations should contact Accessibility & Disability Services (843 - 349-2503 or <https://www.coastal.edu/disabilityservices/>).

Attendance Policy: Students are obligated to attend class regularly. Absences, excused or not, do not absolve students from the responsibility of completing all assigned work promptly. Read in the following page for details:<http://www.coastal.edu/policies/pdf/acad-125classattendance.pdf>.

Cell phone, Ipad/Tablet, Computer Policy: Except in emergencies, the use of cell phones, ipads/tablets or other mobile communication devices is disruptive, and is therefore prohibited during class. Students are permitted to use computers during class for note-taking and other class-related work only.

Statement of Academic Integrity: Coastal Carolina University is an academic community that expects the highest standards of honesty, integrity and personal responsibility. Members of this community are accountable for their actions and reporting the inappropriate action of others and are committed to creating an atmosphere of mutual respect and trust. Please review the revised Code of Conduct that is available on the web at: <https://www.coastal.edu/conduct/>

Math 160 - Student Learning Outcomes

Student learning outcomes for Math 160 (Calculus I) fall into one of the following two categories: computational and conceptual. The following list summarizes the fundamental computational skills and concepts of calculus a student will possess when he/she successfully completes Math 160.

1. Compute average rates of change and instantaneous rates of change of a certain quantity as well as the ability to explain the relationship between these two types of rates of change.
2. Solve the classic problem of finding the equation of the line tangent to the graph of a differentiable function f at a given point $(a, f(a))$.
3. Explain the relationship between the slope of a tangent line and the instantaneous rate of change. Explain the relationship between the slope of a secant and the average rate of change.
4. Compute a variety of limits using numerical and graphical techniques, limit laws and algebraic techniques.
5. Identify continuous functions as well as explain why a function is or is not continuous. Apply the Intermediate-Value Theorem to an equation to show that a solution does or does not exist.
6. Compute several basic derivatives using the definition of the derivative such as polynomial functions, trigonometric functions, exponential functions, logarithmic functions, and inverse trigonometric functions. The ability to use the product rule, quotient rule, chain rule, implicit differentiation, and logarithmic differentiation to compute the derivatives of more complicated functions.
7. Solve the following types of applied problems: related rates problems, optimization problems and rates of change problems.
8. Explain The Mean Value Theorem in terms of average rates of change and instantaneous rates of change as well as provide a geometric interpretation of The Mean-Value Theorem in terms of secant lines and tangent lines.
9. Explain the relationship between a function f , its first derivative f' , and its second derivative f'' . The ability to use the first and second derivatives of a function f to gather certain information about the behavior of the function f .
10. Solve the classic problem of computing the area bounded between the x -axis and the graph of a continuous function f on a given interval $[a, b]$.
11. Explain the intricate relationship between integration and differentiation via The Fundamental Theorem of Calculus.
12. Compute basic definite integrals and indefinite integrals.

LIST OF SUGGESTED EXERCISES TAKEN FROM CALCULUS VOLUME 1, OPENSTAX

Section	Exercises
2.1	16, 17, 18, 19, 20, 21
2.2	30, 31, 32, 33, 39, 46-49, 59-64, 76, 77, 79,
2.3	83-97 odd, 98, 103-112 odd, 115, 117, 126, 127
4.6	251-255 odd, 257, 257, 261-274 odd
2.4	131-138 odd, 139-144 odd, 147, 149, 150, 153, 154
3.1	1, 3, 11-25 odd, 26, 27, 29, 45, 46
3.2	54-63 odd, 64-67, 78, 79, 80
3.3	106-139 odd, 144, 145
3.4	150-157
3.5	175-196 odd
3.6	220-237 odd, 245-252 odd
3.7	279-288 odd, 295, 296
3.8	300-315 odd,
3.9	331-351 odd, 354, 355, 356, 354
4.1	1, 3, 5-21 odd, 22, 24, 25-29 odd
4.2	46, 48, 50-55 odd, 56-67 odd
4.3	91-107 odd, 109, 110, 111, 113, 118, 119, 122, 123
4.4	148-156, 161-166, 167, 168
4.5	194-200, 201-204 odd, 206-210 odd, 213, 214, 216-218, 223-230
4.7	311, 312, 317-321, 337, 338, 344-351, 353, 354
4.8	356-366, 367-392 odd
4.10	465-508 odd
5.1	13, 15, 17, 19, 43, 45
5.2	70-75 odd, 88-93, 98-103, 110-115
5.3	147-163 odd, 170-189 odd,
5.4	223-228 odd
5.5	261-278 odd, 292-297 odd
5.6	320-327 odd, 328-341 odd
5.7	391-394

The syllabus is for planning purpose only and is subject to change anytime.