

Elements of Calculus 1

Math 180

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Office Hours
MW 1:30-2:30 in the LRC
or by appointment

1 Overview

Welcome to Math 180. Here is the UNM course description.

Limits of functions and continuity, intuitive concepts and basic properties; derivative as rate of change, basic differentiation techniques; application of differential calculus to graphing and minima-maxima problems; exponential and logarithmic functions with applications. Credit not allowed for both MATH 162 and MATH 180. Prerequisites/placement: Successful completion of Math 121 or MATH 150 or minimum ACCUPLACER score of 69-99 (College-Level Math), or math ACT score of 26, or math SAT score of 600. Meets UNMCC-Area 2: Mathematics; meets NMCC-Area II: Mathematics.

Note: This syllabus is subject to change, if needed.

2 Course Learning Outcomes

Students will:

1. Find limits algebraically and graphically, and use limits to analyze continuity.
2. Find the derivative of a function by applying appropriate techniques (limit of the difference quotient, general derivative rules, product rule, quotient rule, chain rule, and higher order derivatives).
3. Perform implicit differentiation. Use implicit differentiation to solve related-rates application problems.
4. Use the derivative to describe the rate of change and slope of a curve in general and at particular points. Compare and contrast average rates of change to instantaneous rates of change.
5. Find the maxima, minima, points of inflection, and determine concavity of a function by applying the first and second derivatives. Use these results to sketch graphs of functions and to solve optimization problems in context.
6. Find the antiderivative and indefinite integral functions to include integration by substitution. Apply the Fundamental Theorem of Calculus to compute definite integrals.

7. Approximate the area under the curve using Riemann sums.
8. Use the integral to determine the area under a curve and to find the accumulated value in context.
9. Solve problems by identifying the appropriate type of function given the context, creating a formula based on the information given, applying the knowledge of algebra and calculus, and interpreting the results.
10. Communicate mathematical information using proper notation and verbal explanations.

3 Required Text

The required text for this course is:

- Calculus with Applications, Eleventh Edition, by Lial, Greenwell, and Ritchey

We will be using MyMathLab (MML), so you will need an MML access code. Our MML course ID is **barnett31669**.

4 Attendance Policy

Attendance in the course is required. If a student misses two classes in the first two weeks of the semester, three consecutive class periods or five total, I reserve the right (but not the obligation) to drop the student from the class. If you stop attending class for any reason, it is your responsibility to make sure you drop the class, or risk getting a failing grade.

5 Course Structure

Homework will be based on the following.

- In Class Worksheets (100 points)
 - We will be doing 15 in-class worksheets this semester in groups. I will be grading these based off of participation and completion. This means interacting with your group members and having positive discussions.
- MyMathLab Homework (100 points)
 - We will be using <http://mymathlab.com> for homework. There will be 11 homework assignments worth 10 points each. I will drop the lowest score for a total of 100 points.
- Quizzes (100 points)
 - We will be doing 12 quizzes in class for 10 points each. I will drop the lowest two scores for a total of 100 points. The quizzes will resemble the midterm and final, so they will be good study aides.
- Midterm (100 points)
 - The midterm will cover the first half of the class, and will be good practice for the final exam.
- Final (150 points)

- The final exam will be comprehensive.
- Total (550 points)

6 Grading Policy

Your grades will be calculated as follows.

Point Total	Grade
[539,550]	A+
[506, 539)	A
[495,506)	A-
[484,495)	B+
[451,484)	B
[440,451)	B-
[429,440)	C+
[385,429)	C
[374,385)	D+
[341,374)	D
[330,341)	D-
[0,330)	F

7 Make-up Policy

I will allow up to four late submissions of homework assignments.

8 Important Administrative Dates

Date	Event
Jan 25	Last day to add or change sections
Feb 1	Last day to drop without a “W”
Feb 8	Last day to change grading options
Apr 12	Last day to drop without Dean’s permission
May 3	Last day to drop with Dean’s permission

9 Academic Integrity

We will follow university policy on academic integrity.

Having academic integrity is paramount to your success in any class. Plagiarism or cheating is not tolerated. Any instance of this will result in a grade of zero for that assignment. Here is the link to the UNM Academic Dishonesty Policy: <https://policy.unm.edu/regents-policies/section-4/4-8.html>. The policy states:

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to

and including dismissal, against any student who is found guilty of academic dishonesty or who otherwise fails to meet the expected standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

"Academic dishonesty" includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

10 Students with Disabilities

If you have a documented disability, please provide me with a copy of your letter from Equal Access Services as soon as possible to ensure that accommodations are provided in a timely manner.

11 EQUAL OPPORTUNITY AND NON-DISCRIMINATION:

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see page 15 of this [link](#)). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>.

12 Citizenship And/Or Immigration Status

All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences are normally excused with reasonable notice to the professor. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration's welcome is found on our website: <http://undocumented.unm.edu>

13 Tentative Schedule

Week	Date	Topics
1	Jan 14 Jan 16	Mon: Syllabus, 1.1, 1.2 Wed: 2.4, 2.5 WS 1
2	Jan 21 Jan 23	Mon: MLK, Jr. Day, no class Wed: 3.1, 3.2, Quiz 1
3	Jan 27 Jan 28 Jan 30	Sun: HW 1 Due at 11:59 PM Mon: 3.3, 3.4, WS 2 Wed: 3.5, Quiz 2
4	Feb 3 Feb 4 Feb 6	Sun: HW 2 Due at 11:59 PM Mon: 4.1, WS 3 Wed: 4.2, Quiz 3
5	Feb 10 Feb 11 Feb 13	Sun: HW 3 Due at 11:59 PM Mon: 4.3, WS 4 Wed: 4.4, 4.5, Quiz 4
6	Feb 17 Feb 18 Feb 20	Sun: HW 4 Due at 11:59 PM Mon: 5.1, 5.2, WS 5 Wed: 5.3, 5.4, Quiz 5
7	Feb 24 Feb 25 Feb 27	Sun: HW 5 Due at 11:59 PM Mon: 6.1, 6.2, WS 6 Wed: 6.3, 6.4, Quiz 6
8	Mar 3 Mar 4 Mar 6	Sun: HW 6 Due at 11:59 PM Mon: Review, WS 7 Wed: Midterm Exam
9	Mar 11 : Mar 15	Spring Break
10	Mar 18 Mar 20	Mon: 6.5, WS 8 Wed: 6.6, Quiz 7
11	Mar 24 Mar 25 Mar 27	Sun: HW 7 Due at 11:59 PM Mon: 7.1, WS 9 Wed: 7.2, Quiz 8
12	Mar 31 Apr 1 Apr 3	Sun: HW 8 Due at 11:59 PM Mon: 7.3, WS 10 Wed: 7.4, Quiz 9
13	Apr 7 Apr 8 Apr 10	Sun: HW 9 Due at 11:59 PM Mon: 7.5, WS 11 Wed: 7.6, Quiz 10
14	Apr 14 Apr 15 Apr 17	Sun: HW 10 Due at 11:59 PM Mon: 8.1, WS 12 Wed: 8.2, Quiz 11
15	Apr 21 Apr 22 Apr 24	Sun: HW 11 Due at 11:59 PM Mon: 8.3, WS 13 Wed: 8.4, Quiz 12
16	May 6 May 8	Mon: Review, WS 14 Wed: Review, WS 15