

Calculus 1
Math 1512, Section 501
Summer 2020
UNM-Valencia

Instructor: Greg Barnett

Office
LRC 107
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Office Hours: T, Th
12:00-3:00 online
or by appointment

1 Overview

Welcome to Math 1512. Here is the UNM course description.

Limits. Continuity. Derivative: definition, rules, geometric and rate-of-change interpretations, applications to graphing, linearization and optimization. Integral: definition, fundamental theorem of calculus, substitution, applications to areas, volumes, work, average. (I)

Credit for both this course and MATH 1430 may not be applied toward a degree program.

Meets New Mexico Lower-Division General Education Common Core Curriculum Area II: Mathematics.

Prerequisite: (1230 and 1240) or 1250 or ACT Math \Rightarrow 28 or SAT Math Section \Rightarrow 640 or ACCUPLACER Next-Generation Advanced Algebra and Functions \Rightarrow 284.

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

2 Student Learning Outcomes (SLOs)

Students that successfully complete the course, will, by the end of the course, be able to

1. State, motivate and interpret the definitions of continuity, the derivative, and the definite integral of a function, including an illustrative figure, and apply the definition to test for continuity and differentiability. In all cases, limits are computed using correct and clear notation. Student is able to interpret the derivative as an instantaneous rate of change, and the definite integral as an averaging process.
2. Use the derivative to graph functions, approximate functions, and solve optimization problems. In all cases, the work, including all necessary algebra, is shown clearly, concisely, in a well-organized fashion. Graphs are neat and well-annotated, clearly indicating limiting behavior. English sentences summarize the main results and appropriate units are used for all dimensional applications.

3. Graph, differentiate, optimize, approximate and integrate functions containing parameters, and functions defined piecewise. Differentiate and approximate functions defined implicitly.
4. Apply tools from pre-calculus and trigonometry correctly in multi-step problems, such as basic geometric formulas, graphs of basic functions, and algebra to solve equations and inequalities.
5. State the main theorems of calculus correctly, including all conditions, and give examples of applications. These include the Intermediate Value Theorem, the Mean Value Theorem, the Extreme Value Theorem, and the Fundamental Theorem of Calculus.
6. Solve simple first and second order differential equations, either initial or boundary value problems, including problems where the derivative is given by a piecewise function, or when the initial value problem is described in words, such as in applications from physics, biology and engineering. Be familiar with the harmonic oscillator and describe period, amplitude, and phase shift of the trigonometric functions that appear.
7. Compute integrals using the method of substitution, including changing the bounds in the case of definite integrals.

3 Required Text

The required text (or eText) for this course is:

- Thomas' Calculus, 14th Edition, by Weir and Heil.
- [MyMathLab \(MML\)](#) access is *required* for the course. Course ID: [barnett84683](#)

4 Attendance Policy

Each student is required to check in with me on Zoom at least once per week, and students should use this opportunity to get tutoring directly from me. If a student does not check in with me for two weeks in a row, I reserve the right (but not the obligation) to drop the student from the class. If you stop submitting your coursework for any reason, it is your responsibility to drop the class, or risk getting a failing grade.

5 Course Structure

The course content includes the following.

- Weekly Tutoring Hours in Zoom (120 points)
 - 8 Weekly Meetings (15 points each)
 - Regular Hours are Tuesday and Thursday from 12:00 to 3:00 PM.
 - Schedule a weekly appointment if you aren't available during regular hours.
- Homework (180 points)
 - 6 Homework Assignments in MyMathLab (30 points each)
 - Some problems require you to show your work.

- Midterm Exam (100 points)
 - Timed Exam (2 hours)
 - Available Monday, June 22 at 8:00 AM
 - Due **Friday, June 26** at 11:59 PM.
 - Some Problems require you to show your work.
- Final Exam (150 points)
 - Timed Exam (3 hours)
 - Available Monday, July 20 at 8:00 AM
 - Due **Friday, July 24** at 11:59 PM
 - Some problems require you to show your work.
- Total (550 points)

6 Grading Policy

Your grade 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

Late homework assignments will not be accepted, unless there is a valid reason. Exams may be made up in the event of emergency or extenuating circumstance only.

8 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.

9 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.

10 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>.