UNM Valencia
MATH 1512-501, Calculus I
Spring 2025

Instructor: Michael Gonzales
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Office Location: Tome Campus LRC 107
Office Hours: Mondays: 1230-1330 (Online), 1330-1430 (In person) Tuesdays: 1400-1600 (Online), Wednesdays: 1200-1330 (In Person), and by appointment
Class time and location: Mondays and Wendesdays, 1500-1645, VAAAS-124
MECS Division Chair: Andrew Taylor (ataylor19@unm.edu)

This is a four credit-hour course. Class meets for two 105-minute sessions of direct instruction for fifteen weeks during the Spring 2025 semester. Please plan for a minimum of nine hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week

Text: Calculus, 11th edition, by Ron Larson and Bruce Edwards will be the textbook for this class. You will also need WebAssign Access to complete the Online Homework portion of the course. A digital copy of the textbook is provided thorough WebAssign. Register for our class using our class key which can be found on Canvas. This will be accessed using RedShelf in our Canvas page.

Course description: Limits. Continuity. Derivative: definition, rules, geometric interpretation and as rate-of-change, applications to graphing, linearization and optimization. Integral: definition, fundamental theorem of calculus, substitution, applications such as areas, volumes, work, averages. (I)Credit for both this course and MATH 1430 may not be applied toward a degree program. Meets New Mexico General Education Curriculum Area 2: Mathematics and Statistics. Prerequisites/placement: Prerequisite: (1230 and 1240) or 1250 or ACT Math =¿28 or SAT Math Section =¿640 or ACCUPLACER Next-Generation Advanced Algebra and Functions =¿284. (4 Credit Hours).

Prerequisites: C or better in both Precalculus (Math 1240) and Trigonometry (Math 1230).

Course Outcomes: This course discusses the topics of Limits. Continuity. Derivative: definition, rules, geometric interpretation and as rate-of-change, applications to graphing, linearization and optimization. Integral: definition, fundamental theorem of calculus, substitution, applications such as areas, volumes, work, averages. (I) More detailed SLOs are listed at the end of the syllabus.

Other Requirements:

- Reliable access to a computer or tablet, and Internet. A computer (laptop or desktop) is recommended. Preferred browsers are Chrome, Firefox, or Safari. The preferred operating systems are Windows or Apple.
- Access to UNM Canvas requires use your UNM NetID to log into UNM Canvas. You may access it directly via `https://canvas.unm.edu/`

Attendance/Participation (10%): You are expected to be on time for each class, stay the entire class, have the necessary course materials on hand, and participate in the lecture or group activities to receive full credit for attendance each day. Points will be deducted for unexcused absences and unexcused tardiness.

- **Absences:** If you know ahead of time you will miss class, send me an email with the date of the absence to receive and excused absence. Arrange before the next class to get notes

from a classmate. The student is responsible for the material and information covered in class.

Written Homework (15%): Written Homework will come from the textbook problems and be submitted on paper in person on the given due date. Late Homework will not be accepted. All work to justify your answer (using words or mathematically) must be shown to receive full credit. Any assignment that is illegible, or does not show justification for your solutions will not receive credit. This is subject to individual problems as well. Your two lowest homework grades will be dropped.

Online Homework (15%): There will be online homework assignments posted through WebAssign. These assignments will vary in length based on the material that is to be covered the week prior. For each question, you will have 6 submission attempts, after the 3rd submission it will be a 5% deduction for the problem.

Labs/Projects (15%): Labs will be given in person. They will be taken in person and contain a series of questions based on the most recent sections that were covered in class. Labs are open note, open book, and will be done in groups. These are meant to be done in class and cannot be taken home to be finished. I will try to announce labs once class ahead of time, but these will not be done on scheduled days to ensure you come to class every day. Labs are due the day they are assigned. Projects will also be done in groups and announced ahead of time. Projects will follow the same guidelines as labs except for the fact that these can be worked on outside of class. Your lowest grade will be dropped.

Term Exams (20%): There will be three exams over the course of the semester. These exams will cover the main topics and focuses of the class. The grade for your cumulative final exam will replace your lowest exam grade if it is beneficial to you. On the exams, there will be no notes or calculators of any kind allowed.

Final Exam (25%): There will be a cumulative Final Exam that will cover the entirety of the course. There will be no notes or calculator allowed to be used on the final exam. If your final exam grade is greater than your lowest term exam grade, the Final Exam grade will replace the lowest term exam.

Grading: Course Averages: Attendance/Participation 10%, Written Homework 15%, Online Homework 15%, Labs/Projects 15%, Term Exams 20%, Final Exam 25%. Total: 100%

Grading Scale:

A+ [98% - 100%]	**A** [93% - 98%]	**A-** [90% - 93%]
B+ [88% - 90%]	**B** [83% - 88%]	**B-** [80% - 83%]
C+ [78% - 80%]	**C** [70% - 78%]	
D [60% - 70%]		
F [0% - 60%]		

In the case where a student is unsuccessful in the course, if a grade is required for financial aid, please inform the professor.

Expectations:

- Students are expected to conduct themselves in a polite, courteous, professional, and collegial manner. When participating in discussions or interacting with me or other students be respectful at all times.

Support:

- Tutoring Hours: See my tutoring hours listed at the beginning of this syllabus. Feel free to come by or log in for online office hours or make an appointment to get help.
- Form study groups: You may work together with other members of our class.
- Resources to support study skill and time management are available through UNM-Valencia Learning Commons (Tutoring). Tutoring is available to you in math, science, writing, and other subjects through the Learning Commons: Learning and STEM Centers and Writing Center. In person tutoring is in these centers in the LRC (the building that also has the library). Tutoring in Zoom and, for writing, through email, is also available.

    Making use of tutoring is a fantastic way to use your resources and set yourself up to learn deeply and well in your courses. To schedule an appointment, please go to: Learning Commons Bookings

    If you are making an email appointment with the Writing Center, email your draft to tutor@unm.edu after you fill out the form above.

    If you have difficulty with the scheduling link above, would like an appointment in a subject not listed at that link, or have a question, email tutor@unm.edu. You'll get answers during business hours Monday through Friday. The webpage, with more details about available hours, is here: Learning Commons: Tutoring Services webpage. Center for Academic Program Support (CAPS). Many students have found that time management workshops can help them meet their goals (consult (CAPS) website under "services").
- Student Services: There are various services provided in our Student Services Department. See below about equal access. Also, we have a testing center, advising, and career placement available: Valencia Student Services
- Many students have found that time management workshops or work with peer tutors can help them meet their goals. These and are other resources are available through PASOS (Pathways to Articulation and Sustainable Opportunities for Students), TRIO Student Support Services, and Student Learning Support at the Center for Teaching and Learning.

Instructor Response Time: I routinely check the course for postings or emails, Monday (9 am) – Friday (5 pm), and sometimes on the weekend. You can anticipate a 24 to 48-hour response from me, Monday – Thursday. I will try and respond to all weekend (Friday afternoon to Sunday) emails and postings by noon on Monday or earlier. I prefer all communication through email.

Other Important Information:
Equal Access: In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 for additional information.

If you need an accommodation based on how course requirement interacts with the impact of a disability, you should contact me to arrange an appointment as soon as possible. At the appointment, we can discuss the course format and requirements, anticipate the need for adjustments and explore potential accommodations. I rely on the Disability Services Office for assistance in developing strategies and verifying accommodation needs. If you have not previously contacted them, I encourage you to do so.

If you are a Valencia campus student, contact Equal Access Services at Valencia Campus, Cheryl Dilger at (505) 925-8910 or Valencia Student Services. If you are a main campus student, you can receive documentation from the main campus Accessibility Resource Center. I will not guarantee accommodation without the appropriate documentation.

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 is defined as:

"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.

Title IX Statement: Title IX: UAP 2720 and 2740. Our classroom and university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. If you ever need assistance or have concerns about incidents that violate this principle, please access campus support resources. These include confidential services at LoboRESPECT Advocacy Center, the Women's Resource Center, and the LGBTQ Resource Center. The University of New Mexico prohibits discrimination on the basis of sex (including gender, sex stereotyping, gender expression, and gender identity). UNM faculty and graduate teaching assistants are considered "responsible employees." "Responsible employees" must communicate reports of sexual harassment, sexual misconduct and sexual violence to Compliance, Ethics and Equal Opportunity. For more information on the campus policy regarding sexual misconduct, reporting, and reporting for "responsible employees," please see UAP 2720 and UAP 2740.

If you are pregnant or experiencing a pregnancy-related condition, you may contact UNM's Office of Compliance, Ethics, and Equal Opportunity at ceeo@unm.edu. The CEEO staff will provide you with access to available resources and supportive measures and assist you in understanding your rights. Pregnancy and Parenting Support information is available here.

- Support: LoboRESPECT Advocacy Center, the Women's Resource Center, and the LGBTQ Resource Center all offer confidential services.

Respectful and Responsible Learning: We all have shared responsibility for ensuring that learning occurs safely, honestly, and equitably. Submitting material as your own work that has been generated on a website, in a publication, by an artificial intelligence algorithm, by another person, or by breaking the rules of an assignment constitutes academic dishonesty. It is a student code of conduct violation that can lead to a disciplinary procedure. Please ask me for help in finding the resources you need to be successful in this course. I can help you use study resources responsibly and effectively. Off-campus paper writing services, problem-checkers and services, websites, and AIs can be incorrect or misleading. Learning the course material depends on completing and submitting your own work. UNM preserves and protects the integrity of the academic community through multiple policies including policies on student grievances (Faculty Handbook D175 and D176), academic dishonesty (FH D100), and respectful campus (FH CO9). These are in the Student Pathfinder (https://pathfinder.unm.edu) and the Faculty Handbook (https://handbook.unm.edu).

- Support: Many students have found that time management workshops or work with peer tutors can help them meet their goals. These and are other resources are available through PASOS (Pathways to Articulation and Sustainable Opportunities for Students), TRIO Student Support Services, and Student Learning Support at the Center for Teaching and Learning.

COVID-19 Health and Awareness: COVID-19 Health and Awareness. UNM is a mask friendly, but not a mask required, community. If you are experiencing COVID-19 symptoms, please do not come to class. If you do need to stay home, please communicate with me; I can work with you to provide alternatives for course participation and completion. Let me, an advisor, or another UNM staff member know that you need support so that we can connect you to the right resources. Please be aware that UNM will publish information on websites and email about any changes to our public health status and community response
Support:

- PASOS Resource Center (505) 925-8546, pasps@unm.edu. The Resource Center is an on-campus center that serves as a "one-stop" for all non-academic needs of UNM-Valencia students.
- Student Health and Counseling (SHAC) at (505) 277-3136. If you are having active respiratory symptoms (e.g., fever, cough, sore throat, etc.) AND need testing for COVID- 19; OR If you recently tested positive and may need oral treatment, call SHAC.
- LoboRESPECT Advocacy Center (505) 277-2911 can offer help with contacting faculty and managing challenges that impact your UNM experience

Accomodations: UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructor, it is my objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact Accessibility Resource Center at arcsrvs@unm.edu or by phone at 505-277-3506. The UNM-Valencia Equal Access Services (Sarah Clawson, Coordinator), at (505) 925-8840 or by email at sjclawson@unm.edu.

- Support: Contact me at my email or in office/check-in hours. The UNM-Valencia Equal Access Services (Sarah Clawson, Coordinator), at (505) 925-8840 or by email at sjclawson@unm.edu., Or Accessibility Resource Center (https://arc.unm.edu) at arcsrvs@unm.edu or (505) 277-3506.

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, as noted in the attendance guidelines above. 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: https://undocumented.unm.edu.

For Military-Connected Students: There are resources on campus designed to help you succeed. You can approach any faculty or staff for help with any issues you may encounter. Many faculty and staff have completed the GREEN ZONE training to learn about the unique challenges facing military-connected students. If you feel that you need help beyond what faculty and/or staff can give you, please reach out to the Veterans Resource Center on main campus at 505-277-3181, or by email at https://vrc@unm.edu. The Veterans Coordinator at UNM-Valencia is in the Student Services Office, at 505-925-8560.

Land Acknowledgement: Founded in 1889, the University of New Mexico sits on the traditional homelands of the Pueblo of Sandia. The original peoples of New Mexico Pueblo, Navajo, and Apache since time immemorial, have deep connections to the land and have made significant contributions to the broader community statewide. We honor the land itself and those who remain stewards of this land throughout the generations and also acknowledge our committed relationship to Indigenous peoples. We gratefully recognize our history.

Semester Dates and Deadlines:

- Spring 2025– 16-week classes (deadlines will be different for first and second 8-week classes)
- Monday, January 20: Martin Luther King Jr. Day (no class)
- Tuesday, January 21: First day of class, classes available in Canvas
- Friday, January 31, by 5:00 pm: Last day to add a class or to change credit hours or grade mode in LoboWEB. 1st 8 weeks is January 24, 2nd 8 weeks is March 28
- Friday, February 7: Last day to drop without "W" grade and with 100% refund on LoboWEB. 1st 8 weeks is January 31, 2md 8 weeks is April 4
- Spring Break March 16-23
- Friday, April 18 : Last day to drop without Student Services' permission on LoboWEB. Will receive "W" grade and will be responsible for tuition for the course. 1st 8 weeks is February 28, 2nd 8 weeks is May 2.
- Thursday, May 8: Last day to drop with the permission form (whole semester and 2nd 8 weeks). 1st 8 weeks is March 13
- Finals Week: Monday, May 12 - Saturday May 17.
- Our Final Exam will be Monday, May 12 from 1500-1700.

MATH 1512 Course Student Learning Outcomes:

1. Limits and Continuity
   - Estimate a limit using a numerical or graphical approach.
   - Evaluate a limit using properties of limits, the dividing out technique, the rationalizing technique and the Squeeze Theorem.
   - Determine continuity at a point and continuity on an open interval.
   - Determine one-sided limits and continuity on a closed interval.
   - Use properties of continuity.
   - Understand and use the Intermediate Value Theorem.
   - Determine infinite limits from the left and right.
   - Find and sketch vertical asymptotes of the graph of a function.
2. Differentiation
   - Find the slope of the tangent line to a curve at a point.
   - Use the limit definition to find the derivative of a function.
   - Understand the relationship between differentiability and continuity.
   - Find the derivative of a function using the Constant Rule, Power Rule, Constant Multiple Rule, Sum and Difference Rules, Product Rule, Quotient Rule, and Chain Rule.
   - Use derivatives to find rates of change.
   - Find the derivative of a trigonometric function.
   - Find a higher-order derivative of a function.
   - Distinguish between functions written in implicit form and explicit form.
   - Use implicit differentiation to find the derivative of a function.
   - Use related rates to solve application problems.
3. Applications of Differentiation
   - Understand the definition of extrema of a function on an interval.
   - Understand the definition of relative extrema on an open interval.
   - Find extrema on a closed interval.
   - Use Rolle's Theorem and the Mean Value Theorem.
   - Determine intervals on which a function is increasing or decreasing.
   - Apply the First Derivative Test to find relative extrema of a function.
   - Determine intervals of concavity.
   - Find any points of inflection of the graph of a function.
   - Apply the Second Derivative Test to find relative extrema of a function.
   - Determine finite and infinite limits at infinity.
   - Determine the horizontal asymptotes, if any, of the graph of a function.

- Analyze and sketch the graph of a function.
- Solve applied minimum and maximum problems.
- Approximate a zero of a function using Newton's Method.
- Understand the concept of a tangent line approximation.
- Estimate a propagated error using a differential.

4. Integration
- Use basic integration rules to find antiderivatives.
- Find a particular solution of a differential equation.
- Use sigma notation to write and evaluate a sum.
- Understand the concept of area, and approximate the area of a plane region.
- Find the area of a plane region using limits.
- Understand the definition of a Riemann sum.
- Evaluate a definite integral using limits and geometric formulas, as well as properties of definite integrals, and the Fundamental Theorem of Calculus.
- Use the Mean Value Theorem for Integrals.
- Determine finite and infinite limits at infinity.
- Find the average value of a function over a closed interval.
- Understand and use the Second Fundamental Theorem of Calculus, as well as the Net Change Theorem.
- Use a change of variables, General Power Rule for Integration to find an indefinite integral and evaluate a definite integral.
- Evaluate a definite integral involving an even or odd function.
- Find the area of a region between two curves (intersecting or not) using integration.
- Describe integration as an accumulation process.
- Find the volume of a solid of revolution using the disk/washer/shell method, and compare the uses of the disk method and the shell method.

Tentative Schedule

Week	Dates	Sections/Topics	Assignments Due
1	01/20-01/26	Intro and Review	
2	01/27-02/02	Sections 1.1-1.3	
3	02/03-02/09	Sections 1.4-1.5	Sections 1.1-1.3 Written and Online
4	02/10-02/16	Sections 2.1-2.2	Sections 1.4-1.5 Written and Online
5	02/17-02/23	Exam 1 Sections 2.3-2.4	Sections 2.1-2.2 Written and Online
6	02/24-03/02	Section 2.5	Sections 2.3-2.4 Written and Online
7	03/03-03/09	Sections 2.6-2.7 Review	Section 2.5 Written and Online
8	03/10-03/16	Sections 3.1-3.2	Sections 2.6-2.7 Written and Online
9	03/17-03/23	SPRING BREAK	
10	03/24-03/30	Sections 3.3-3.4	Sections 3.1-3.2 Written and Online
11	03/31-04/06	Exam 2 Sections 3.5-3.7	Sections 3.3-3.4 Written and Online
12	04/07-04/13	Sections 4.1-4.2	Sections 3.5-3.7 Written and Online
13	04/14-04/20	Sections 4.3-4.4	Sections 4.1-4.2 Written and Online
14	04/21-04/27	Sections 4.5	Sections 4.3-4.4 Written and Online
15	04/28-05/04	Exam 3 Ch. 5 topics	Sections 4.5 Written and Online
16	05/05-05/11	Ch. 5 topics Final Review	Ch. 5 topics Written and Online
	05/12-05/17	Final Exams Week	May 12, 3:00pm - 5:00pm