Welcome to Math 1430

APPLICATIONS OF CALCULUS I

INSTRUCTOR:
Precious Andrew
pandrew@unm.edu
Office: AS123

TUTORING/OFFICE HOURS:
Tuesdays 12:30-1:30pm and Tuesdays and Thursdays 4:15-5:45pm, or by appointment.

OFFICE: Arts and sciences 123 (A123). Zoom hours will be facilitated using the link posted in Canvas.

COURSE DESCRIPTION:
An algebraic and graphical study of derivatives and integrals, with an emphasis on applications to business, social science, economics and the sciences. Meets New Mexico General Education Curriculum Area II: Mathematics and Statistics. (3 Credit Hours).

PREREQUISITES:
C or better in Math 1220, 1240, or 1250 or an appropriate placement test. Check with your advisor to make sure you meet the requirements.

START BY EXPLORING OUR COURSE AT CANVAS.UNM.EDU
Here you will find course information and our textbook: Calculus with Applications,12th edition, by Lial, M. L., Greenwell R. N., & Ritchey N. P. Pearson Publishing. **In Canvas you can also access your online MyMathLab homework.**

THE GRADE YOU EARN WILL BE BASED ON THE FOLLOWING ASSIGNMENTS AND SCALE:

2 Exams (100 pts. each)	**200 points**
MyMathLab Onine HW	**100 points**
Additional Assignments	**100 points**
Final Exam	**150 points**
Total	**550 points**

A+: 97-100%	**A: 93-96%**	**A-: 90-92%**
B+: 87-89%	**B: 83-86%**	**B-: 80-82%**
C+: 77-79%	**C: 73-76%**	**C-: 70-72%**
D+: 67-69%	**D: 63-66%**	**D-: 60-62%**
F: < 60%		

FOR THIS CLASS, YOU WILL NEED reliable internet access, access to MyMathLab a a printer, a scanner or scanner app like AdobeScan or Camscanner, and a scientific calculator.

LATE WORK is generally not accepted, but please contact me if you have special circumstances so we can discuss a plan to support your success.

ATTENDING CLASS IS ESSENTIAL. Please commit to attend every class meeting, unless there is an emergency. If you miss three classes, you may be dropped from the course. This is because students who miss this many class meetings rarely successfully complete the course. Please communicate any special circumstances with me, as absences for professional events, religious or cultural holidays, athletics competitions, etc. can sometimes be excused with an alternative plan. Let's talk! **In an online course, not submitting an assignment or quiz will be regarded as an absence.**

MECS DIVISION CHAIR:
Andrew Taylor
ataylor19@unm.edu

ABOUT YOUR INSTRUCTOR:
I hope to see you in office hours! For now, here is a little about me. My name is Precious Andrew. Most students call me my first name, Precious, or Ms. Andrew if you prefer. I have been teaching mathematics at UNM since 2007. I have lived in New Mexico since I was a child, I studied at UNM,I love red chile, and I enjoy powerlifting.



Tutoring:
You can schedule an appointment for free in-person or online tutoring. Stop by the Learning Center in the UNM-Valencia Campus library, email tutor@unm.edu, call (505)228-8860, or visit the link to schedule an appointment – Tutoring Services

Grade mode and Withdrawals: You must select your grade mode (Letter Grade, CR/NC, or Audit) within the first 2 weeks of the semester. Students who withdraw after the deadline will receive a grade of W. If you do not withdraw (but stop attending), you may receive a failing grade. Make sure to drop the class on my.unm if you wish to do so. See the list of all deadlines: https://registrar.unm.edu/

"You can totally do this!"

AI Policy: Using generative AI to complete submitted coursework in this course will interfere with the advantages in learning and understanding that this course offers you. You are expected to complete submitted work without any generative AI assistance. The assignments in this course are aligned with specific learning processes and outcomes that support your future learning and expertise. Submitting AI-generated work in this course is inconsistent with course expectations and may violate UNM's academic integrity standards and Student Code of Conduct. If AI use is suspected, I will use submitted coursework, conversations with you about your work and process, and this syllabus to determine whether academic misconduct occurred. If you are unsure if a tool or use is allowed, please ask before submitting the assignment.

Here are some additional resources:

UNM-Valencia Campus Library Home Page :: Valencia Campus | The University of New Mexico

Veteran & Military Resource Center | The University of New Mexico

Pasos Resource Center :: Valencia Campus | The University of New Mexico (505) 925-8546. The Resource Center is an on-campus center that serves as a "one-stop" for all non-academic needs of UNM-Valencia students.

UNM IT Help Information: (505) 277-5757 for myUNM, NetID, and other IT needs.

Here are the student learning outcomes and essential skills:

By the end of the semester, students should be able to:

A. 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 can interpret the derivative as an instantaneous rate of change, and the definite integral as an averaging process.

B. 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.

C. Graph, differentiate, optimize, approximate and integrate functions containing parameters, and functions defined piecewise. Differentiate and approximate functions defined implicitly.

D. State the main theorems of calculus correctly, including all conditions, and give examples of applications. These include the Intermediate Value Theorem, the Extreme Value Theorem, and the Fundamental Theorem of Calculus.

E. Compute integrals using the method of substitution, including changing the bounds in the case of definite integrals.

The New Mexico Higher Education Department (HED) defines the following three essential skills for general education mathematics courses. The unit assignments and assessments, including worksheets, discussion postings, exams, and the poster presentation, are designed to allow students the opportunity to demonstrate developing skills in these areas, as well as to demonstrate mastery of the student learning outcomes described above.

1. Communication
    a. Genre and Medium Awareness, Application, and Versatility: Identify and communicate in various genres and mediums (oral, written, and digital) using strategies appropriate for the rhetorical situations (i.e., attending to audience, purpose, and context).
    b. Strategies for Understanding and Evaluating Messages: Apply strategies such as reading for main points; seeking key arguments, counterarguments, rebuttals; locating supportive documentation for arguments; reading with a specific stakeholder lens; applying a theoretical lens (e.g. cultural, political, economic) to understand and evaluate messages in terms of the rhetorical situation (audience, purpose, and context).
    c. Evaluation and Production of Arguments: Evaluate the authority of sources in their own arguments and those of others; distinguish among supported claims, unsupported claims, facts, inferences, and opinions.

2. Quantitative Reasoning

    a. Communication/Representation of Quantitative Information: Express quantitative information symbolically, graphically, and in written or oral language.
    b. Analysis of Quantitative Arguments: Interpret, analyze and critique information or a line of reasoning presented by others.
    c. Application of Quantitative Models: Apply appropriate quantitative models to real world or other contextual problems.

3. Critical Thinking

    a. Problem Setting: Delineate a problem or question. Students state problem/question appropriate to the context.
    b. Evidence Acquisition: Identify and gather the information/data necessary to address the problem or question.
    c. Evidence Evaluation: Evaluate evidence/data for credibility (e.g. bias, reliability, and validity), probable truth, and relevance to a situation.

d. Reasoning/Conclusion: Develop conclusions, solutions, and outcomes that reflect an informed, well-reasoned evaluation.

University Policies:

Accommodations:

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 the UNM-Valencia Equal Access Services (Sarah Clawson, Coordinator), at (505) 925-8840 or by email at sjclawson@unm.edu. Also available is the Accessibility Resource Center at UNM-Albuquerque at arcsrvs@unm.edu or 505-277-3506.

UAP 2720 and 2740. Our classroom and university should foster mutual respect, kindness, and support. If you have concerns about discrimination, harassment, or violence, please seek support and report incidents. Find confidential services at LoboRESPECT Advocacy Center, the Women's Resource Center, and the LGBTQ Resource Center. UNM prohibits discrimination on the basis of sex (including gender, sex stereotyping, gender expression, and gender identity). All instructors are "responsible employees" who must communicate reports of sexual harassment, sexual misconduct and sexual violence to Compliance, Ethics and Equal Opportunity. For more information, please see UAP 2720 and UAP 2740.

Credit-hour statement: This is a three credit-hour course delivered in an entirely asynchronous online modality over 8 weeks during the Fall 2026 semester. Please plan for a minimum of 18 hours per week to learn course materials and complete assignments.

Schedule of Topics:

Oct 12	Selected Review
	Sec. 3.1: Limits
	Sec. 3.2: Continuity
Oct 19	Sec. 3.3: Rates of Change
	Sec. 3.4: Definition of the Derivative
	Sec. 4.1: Techniques for Finding Derivatives
	Sec. 4.2: Derivatives of Products and Quotients
Oct 26	Sec. 4.3 The Chain Rule
	Sec. 4.4: Derivatives of Exponential Functions
	Sec. 4.5: Derivatives of Logarithmic Functions
	Exam #1
Nov 2	Sec. 5.1: Increasing and Decreasing Functions
	Sec. 5.2: Relative Extrema
	Sec. 5.3: Higher Derivatives, Concavity, and the Second Derivative Test
Nov 9	Sec. 5.4 Curve Sketching
	Sec. 6.2: Applications of Extrema
	Sec. 6.4: Implicit Differentiation
Nov 16	Sec. 6.5: Related Rates
	Sec. 7.1: Antiderivatives
	Sec. 7.2: Substitution
	Exam #2
Nov 23	Sec. 7.3: Area and the Definite Integral
	Sec. 7.4: The Fundamental Theorem of Calculus
	Thanksgiving break
Nov 30	Sec. 7.5: The Area Between Two Curves
	Review
Dec 7	**Final Exam**