

Math 2531 Calculus III Syllabus Spring 2024 In Person, Mon & Wed 3:30-5:15p, UNM-Valencia
Prerequisite: C or better in Calculus II/Math 1522

Instructor: Clifton Murray.

Available-to-Help times: Mon & Wed 1:30-3:15p, Tues 4:15-5:15p; Thurs 11:45a-12:15p, 4:15-5:45p, all in the Physics classroom A126 (my office A126A is in the back of the classroom.) wcmurray@unm.edu. Phone (leave message) 505-925-8727

Essential Items: Textbook Calculus 11 ed, authors Larson and Edwards.

Scientific Calculator (capable of powers-of-ten notation, and having sin, cos, tan functions)

This is a four credit-hour course. Please plan for a minimum of eight hours of out-of-class work (homework, study, assignment completion, class preparation) each week.

Attendance will be taken every class. After four accumulated absences, the student may be dropped from the course. If you know you have work or other essential/unavoidable conflict, see the instructor to decide whether/how you can remain in the course.

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 me privately during office hours or at wcmurray@unm.edu, or you may contact UNM-Valencia Equal Access Services (Sarah Clawson, Coordinator), at (505) 925-8840, email sjclawson@unm.edu.

Academic dishonesty as defined in the UNM-Valencia catalog includes copying work from other students or, by implication, having another student do the work for you. Any student found to have done this on tests or homework is subject to disciplinary action, ranging from a reduced or failing grade for the work &/or the course to dismissal from the University.

Persistent disruptive behavior which interferes with other students' education—such as loud, distracting talking or insulting classmates or the instructor, will result in the offender being dropped from the course.

Any *sexual misconduct or gender discrimination* observed by or reported to a UNM Faculty member must be reported to the UNM Office of Equal Opportunity and the Title IX Coordinator. For more information regarding what constitutes sexual misconduct, see <https://policy.unm.edu/university-policies/2000/2740.html>

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 at []; 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.

Homework assignments are taken from textbook end-of-section exercises. The daily assignments are on the class calendar (separate from this document). Group the problems as on calendar—that is, turn problems in grouped by the Day they are listed on the calendar—Not by section. When solving a problem, **clearly separate individual main problems, with either**

whitespace or a bold line. Make the main problem number super-BIG...like, #3, #17, #23_{a,b,c...}(don't make the a,b,c...big.) This demarcation of each Main prob # helps me find the problems and grade them fast, which I need to do—I grade a lot of homework. *Sketches are required on all homework problems where appropriate—for examples, problems referring to a picture-able physical situation, or to a geometric figure.

Late or Missed Work Tests will occur during class time, as on our Calendar. No makeup tests.

Homework: Late 1 class day: minus 50%. Late 2 class days: minus 100% (zero credit)

Tutoring is available, free of charge. <https://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html> for hours, <https://esurvey.unm.edu/opinio/s?s=131505> to request a form.

Minimum Final Exam Score: If the score on the final exam is less than 70%, the student will receive a grade of D or less for the course, regardless of other test or homework scores.

Grading:

	Maximum possible points
4 tests, each worth 100 pts	400
Homework	100
Drop lowest one of tests and hmwk	-100
Final exam (comprehensive, not dropped)	$\frac{150}{550} \leftarrow$ (if < 70%, course grade is D or below) 550 (max poss course total)
$532 \leq x \leq 550$	A+ (unless a test is missed, or homework score is less than 50%)
$512 \leq x < 532$	A (unless a test is missed)
$495 \leq x < 512$	A-
$477 \leq x < 495$	B+
$457 \leq x < 477$	B
$440 \leq x < 457$	B-
$422 \leq x < 440$	C+
$402 \leq x < 422$	C
$385 \leq x < 402$	C- * See note below re C-minus
$330 \leq x < 385$	D
$x < 330$	F

* Be aware that a C-minus might Not qualify you for a planned future course(s) or degree (“a C-minus is not a C”). It is your responsibility to know what grades are required for your academic plans.

Course Objectives/Student Learning Outcomes

1. Sketch and interpret graphs of lines and geometric figures in 3-D.
2. Calculate Dot and Cross Vector Products.
3. Match equations and graphs of cylindrical and quadric surfaces.
4. Perform derivative, antiderivative, and integral calculations with vector functions.
5. Solve 2-D projectile motion problems using vector equations.
6. Identify and calculate arc length, unit tangent vectors, and curvature.
7. Identify and calculate the unit normal and unit binormal vectors for a 3-D curved path thru space.
8. Graph functions of two variables.
9. Find limits of multi-variable functions.
10. Find derivatives of multi-variate functions
11. Calculate directional derivatives and the gradient for functions of two and three variables.
12. Estimate the change in a function of two or three variables due to small changes in those variables, using differentials.
13. Find extrema of two-variable functions using 1st and 2nd derivative tests
14. Find extrema of two-variable functions using the method of LaGrange Multipliers.
15. Find antiderivatives and integrals of functions of two variables in
 - a) rectangular and b) polar coordinates.
16. Find antiderivatives and integrals of functions of three variables in
 - a) rectangular, b) cylindrical, and c) spherical coordinates.
17. Calculate the Work done by a vector force Field in 3-D space moving along a path using a path integral
18. Explain and calculate circulation and flux in the context of 2-D vector fields.
19. Use Green's Theorem to calculate circulation in a 2-D field.
20. Calculate surface integrals.
21. Use Stoke's Theorem to calculate circulation (Curl) in a 3-D vector field.
22. Find the Divergence of 2-D and 3-D vector fields.

