

Instructor: Mathias L Bali **email:** mbali@unm.edu **Phone:** 925-8500 Ext 5825
Office: A107 **Messages:** 925-8600 (Academic Office)
OFFICE HOURS: Mon&Wed 8.00 am to 9.00 am (in A107); 9.00 – 10.00 (at Math Center). Tue & Thur 10.30 am to 11.30 am

Prerequisite : C or better in Math 163 (Calculus II).

Required materials: Text Thomas' Calculus 13th ed., by Weir & Hass .

Sometimes useful : Scientific graphing calculator.

Disabilities : If you have a documented disability, please provide me with a copy of your letter from Equal Access Services , so that appropriate accommodations can be made.

Academic Dishonesty: as defined in the UNM-Valencia catalog, includes copying work from other students. Any student found doing this is subject to disciplinary action, ranging from “a reduced or failing grade for the work in question and/or the course...” thru being dropped from the course to being dropped from the University.

Persistent disruptive behavior which interferes with students' education—such as loud, distractive talking, insulting classmates or the instructor, repeated interruption of students' or the instructor's work, etc., may result in the student being dropped from the class.

Any Sexual Misconduct or Gender Discrimination brought to a faculty member's attention must, per UNM policy, be reported by the faculty member to the Office of Equal Opportunity and the Title IX Coordinator. For information regarding what comprises sexual misconduct see <https://policy.unm.edu/university-policies/2000/2740.html>

Electronic Communication Devices, incl. cell phones, laptops and such: Must be Off at all times during class. If you must text message, please leave the classroom.

Children are not permitted in Class, due to liability concerns.

Penalty for missing a test: Default policy is No "makeup" tests, so a missed test will be the one and only dropped score for the semester. Early tests are possible. If prior notice is given (phone or email message), or a verified emergency occurs just before the test, it is possible the instructor will, at his discretion, allow a late makeup test to be taken. Up to 20% reduction in score may be applied, depending on circumstances.

Homework:

Homework assignments are due the next class day, at the beginning of class. Staple the day's homework together as a single packet, with problems and sections arranged in order as they appear on the green calendar. Also, please make the separation between main problems

(#3, 6, 18, e.g, NOT a, b, c,...) extra obvious. This makes the Professor's work go a little faster, Thanks.

Late homework: 1 day late, -50%; 2 days late, -100%.

Attendance: After four accumulated absences, the student may be dropped by the instructor without further notice.

Grading Max possible points

Homework 100

4 tests 400 Drop lowest one of tests or
homework -100

Final exam (not dropped, comprehensive, min 65% to pass course) 150

550 max poss course total (“x” represents student’s total course score)

532 < x < 550 A+ (unless a test is missed, or homework score is less than 50%.)

512 < x < 532 A (unless a test is missed)

495 < x < 512 A-

477 < x < 495 B+

457 < x < 477 B

440 < x < 457 B-

422 < x < 440 C+

402 < x < 422 C

385 < x < 402 C-

330 < x < 385 D

0 < x < 330 F

Course Objectives/Student Learning Outcomes: A student who earns an “A” or “B” in the course should be able to:

1. Interpret and construct graphs of lines and surfaces in 3-D.
2. Calculate Dot and Cross Products of 3-D vectors.
3. Match equations of cylindrical and quadric surfaces to their graphs.
4. Perform derivative and integral calculations on vector functions.
5. Solve projectile motion problems using vector equations.
6. Identify and calculate arc length, unit tangent vector, and curvature.
7. Identify and calculate the unit normal vector, and also the unit binormal vector, to a 3D curve.
8. Graph functions of two variables, e.g. $z = f(x,y)$.
9. Find limits of functions of more than one variable.
10. Find derivatives of functions of more than one variable.
11. Calculate directional derivatives and the gradient for functions of two and three variables.
12. Construct normal lines and tangent planes to a point on a surface $z = f(x,y)$.
13. Estimate the change in a function $z = f(x,y)$ due to a small change Δx or Δy , using differentials.
14. Find extrema of functions of two variables using the 1st & 2nd derivative tests.
15. Find extrema of functions of two variables using the method of Lagrange multipliers.

16. Perform integration of functions of two variables (double integrals), in a) rectangular coordinates, and b) polar coordinates.
17. Perform integration of functions of three variables (triple integrals), in a) rectangular, b) cylindrical, and c) spherical coordinates.
18. Calculate the work done by a vector force-field in 3-D space over a variable path (line integrals).
19. Calculate, and explain the concepts of, circulation and flux of a vector field.
20. Use Green's theorem to calculate circulation in a 2-D vector field.
21. Calculate surface integrals.
22. Using Stoke's theorem, calculate circulation in a 3-D vector field.
23. Find the divergence of 2-D and 3-D vector fields.
24. Calculate the Curl at a point in a 3-D vector field
25. Find the Laplacian of a function.

IMPORTANT DATES (all deadlines are by 5:00 PM Mountain Time):

The class you initially registered for is a first 8-week course, so the following deadlines apply.

Martin Luther King Holiday Monday, January 15, 2018

Last day to add or change grading mode on LOBOWeb: Friday, January 19, 2018

Last date to drop without a grade: Friday, January 26, 2018

Last date to drop without Dean's Permission: Friday, February 23, 2018

Last date to change grading mode with form Friday, March 9, 2018

Last date to drop with Dean's permission Friday, March 9, 2018

Spring Break: March 12 – 16, 2018