Filename FA18 MATH 264 501 MurrayC

Instructor's office & hours: Room 126A: MW 3:15-4:15, T 4:15-5:45p,Th 11:45-12:15p, 1:15-2:45p,4:15-5:45p.

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

Required materials: Text Thomas' Calculus 14th ed., by Weir & Hass.

Sometimes useful: Scientific graphing calculator.

*Disabilities*: If you feel that you need special accommodations, you will need a letter documenting your disability—contact Jeanne Lujan, Equal Access Services coordinator, 505-925-8910 or jmlujan@unm.edu.

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 <a href="https://policy.unm.edu/university-policies/2000/2740.html">https://policy.unm.edu/university-policies/2000/2740.html</a>

*Electronic Communication Devices*, incl. cell phones, laptops and suc should be **Off** during class. If you must text message, please leave the classroom. No cellphone use is permitted during tests; if the student needs to take a break during tests, that student must leave her or his cellphone with the instructor.

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)				
$532 \le x \le 550$	A+	(unless a test is missed, or homework	score is les	s than 50%.)
$512 \le x < 532$	A	(unless a test is missed)		
$495 \le x < 512$	A-			
$477 \le x < 495$	B+			
$457 \le x < 477$	В			
$440 \le x < 457$	В-			
$422 \le x < 440$	C+			
$402 \le x < 422$	C			
$385 \le x < 402$	C-			
$330 \le x < 385$	D			
$0 \le x < 330$	F			

<sup>...</sup>Calc III Syllabus, continued....

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  $\Delta x$  or  $\Delta y$ , 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.

CLIFTON MURRAGE CALCULUS JA MATH 264 UNM-VALGACIA FALL 2018 MADGON WEDHESDAY 20AUG 12.1 3-D COORD SYSTEM 22 AUG- 12.2 VECTORS # 1,3,5,7,11,17,19,27,53 # 1,7, 13, 21, 23, 25, 33, 45, 47 27AUG 12.3 (Vector) DOT PRODUCT A.B #1,9,15a,6,16,25,43 29 AS OF 12.6 COUNTORS OF CYLY QUADRIC SWRFACES IDENTIFY & SKETCH 124 Vector Cross Product AXB #2,3,5,6,11,23,25 ±1,3,5,7,9,11,13,17,21,25,27,31 3 56P Ruw LABOR DAY ~ NO CLASS 12 SEP 13.1 VECTOR RUDGIONS & DERIVATIVES 10 SEP #5,7,9,11,15,19. MURON: PUSITION Pet). VELOCITY 18th, ACCEL 18"H 1956P 13.3 UNITTANGENT VECTOR #1,3,15 17 SEP 13.2 INTECRALS OF VECTOR FUNCTIONS, 13.4 CURVATURE, UMIT NURMAL VECTOR Z-D PROSECTILE MOTION #1,3,9 . (REVISIT) 13.2 # 36 #1,3,5,11,23,25 26SEP. 24 SEP 13.5 THREE ACCELLARATION VECTORS # 1,3,7,9,17,19 3 Oct 14.1 FUNCTIONS OF TWO + (MY) VBLS LOCT TEST # 2 ±1,3a,14,37,49 14.2 LIMITS OF MV FAS #1,5,11,13,25,29,41,43 100c7/4.4 CHANN RULE #1,9,25,47 8 OCT/4,3 PARTIAL DETENTIVES 14.5 DERIV , G GRADIENT #1,7,11,19 #1, 2, 5, 23, 31, 43, 55, 75, 83, 91 150cr/4, 6 DIFFERENTIALS # 23, 27, 53 170cT/4.7 EXTREMA CONTIN #3,41 14.8 SOLVING GATREMA PROBS W/ LAGRANGE MULTIPHERS # 14.7 EXTREMA OF MV FUNCTIONS # 1, 2 24 Oct ZZ OCT TEST # 3 RVW 31 Oct /5.4 SS POLAR CONRD = #9,11,27,29 29 Oct 1511 DoubLE INTEGRALS #1,3,17 15.5 TRIPLE INTEGRALS - RECT COURDS 15.2 # 9,11,13,19,22 #7,9,17,21c, 22a, 23 15.3 #1,5 7 NOV 15.7 SSS SPACRICAL COORDS 5 NON FINISH 15.5. 15.7 SSS CYL COORDS #25,29,31,37,39 # 43,49, 54a, 55,56 14 Hor 12 NOV TESF#4 RVW 21 NON 16.2 FLUX. CIRCULATION #790, 55 16.4 DIVERGENCE, CURL, IN Z-D, 19NOV 16.1 PATH TATEGRALS. #1,3,5,9,11,27 16.7 VECTOR FICKOS WORK #1, 3, 7, 19 GREEN'S THEOREM #7, 11, 27 28 NOV 16.8 DIVERGENCE, CURL 12 3-0 #1, Z 26 Nov 16.5 NON-FLAT SURFACE NIGER #49 16.6 INTEGRALS OVER SURFACES #9,31 16.7 STORES THEOREM #1,2 LAPLAGIA: HMUK = INSTRUCTUR'S HANDOUT 5 DEC 3 DEC RVW FOR FINAL RVW FOR FINAL 10 PEC FINAL XAM 1:30-3:30 P 12 DEC