Applications of Calculus I (Math 1430) **Syllabus** Spring 2021 Clifton Murray, UNM-Valencia

Class meets Online, via Zoom, MW 1:30-2:45p

Prerequisites: Grade of C or higher in Math 1220 (College Algebra) or Math 1240 (Pre-Calculus), or minimum ACCUPLACER score of 249 (A&F) or Math ACT score of 26+ or math SAT score of 600+.

Instructor's available (email or Zoom) Hours W 10:30a-12:30p; Th 11:45a-12:15p, 1:35 -2:45p, 4:15-6:15p.
wcmurray@unm.edu

Required Items:
Text: Calculus with Applications, 11th ed., by Lial, Greenwell, Ritchey
Scientific Calculator ("Scientific" means it has powers-of-ten notation capability, and trig functions). If it has Graphing capability, that will be useful on occasion. (An Online calculator is Not recommended, because cell-phones and internet access are Not allowed on tests.)
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Student Learning Goals & Objectives: Acquire the ability to
-Find the limit, as a variable approaches a specific value, of functions.
-Distinguish between, and calculate, average and instantaneous rates of change.
-Interpret the Derivative as the limit of rate-of-change.
-Find the derivative of an assortment of function types: variables raised to powers, polynomials, products and quotients of functions, composite functions, exponential and logarithmic functions.
-Use the derivative as a tool to determine function behavior.
-Use the derivative as a tool for finding function extrema.
-Use the limit and derivative as tools for solving applied problems.
-Solve problems involving rates of change of two variables (Related Rate problems.)
-Find the Antiderivatives of functions.
-Use antiderivatives to evaluate Integrals (via the Fundamental Theorem of Calculus.)
-Use antiderivatives/integration for finding the area between a graphed and an axis, and also between two graphed curves.
-Use antiderivative and integration techniques to solve applied problems.

Policies and Notices:
**After four accumulated absences, the student may be dropped by the instructor without further notice*.

**Missed tests*: If a test is missed, the score for that test will be zero, and that will be the one score dropped at semester's end. Note that a missed test disqualifies the student from receiving an A or A+ in the course, regardless of overall points earned.

**Late homework*. Credit may be reduced by 50% if one day late; minus 100% if two or more days late. Homework due dates are indicated on the schedule accompanying this syllabus. (Extensions may be granted if late turn-in is due to emergency, and Instructor has been notified.)

**Persistent disruptive behavior,* such as loud talking, ridiculing or intimidating the instructor or other students, or other forms of distraction, will result in the offender being dismissed and dropped from the class.

**Reporting Sexual Misconduct:* Any report of sexual misconduct or gender discrimination made to a UNM faculty member, TA, or GA must be reported to the Office of Equal Opportunity and the Title IX Coordinator (acatena@unm.edu, 505-277-5251).. For more information on UNM policy re sexual misconduct see https://policy.unm.edu/university-policies/2000/2740.html

Homework Format: Homework problems should be clearly separated, either by whitespace (that means more space between main problems than within the problem), or by a separation line between main probs (not between subprobs a, b, c…). Turn homework in by *day*—not by section. That is, if sec 3.1 and 3.2 are presented on the same day, 3.1 and 3.2 should be grouped together. Only one turn-in is allowed, 2nd partial submissions will not be scored.

Also, please make the **main** prob #--5, 11, 21, … (**not** a,b,c…) extra BIG. This is to help make the separation between main problems really obvious, so the instructor can find and check the main problems fast.

A *Formula/Equation sheet* will be provided before each test. Only minor notations on the sheet are allowed. No example problems are permitted.

An *Honor Statement* will accompany tests. The statement must be signed and dated in order to receive credit for the test.

Tutoring, free. https://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html for hours;

https://esurvey.unm.edu/opinio/s?s=131505 ,form to request an appointment.

****Final Exam Minimum Grade*** is **70%** in order to receive above a "D", regardless of other test or homework scores.

Grading:	Maximum points
Homework	100
4 tests	400
Drop lowest one of tests or homework:	-100
Final exam (not dropped)	150 (**min 105 (70%) to receive higher than a "D"**.)
	550 Max poss course total

("x" = student's total accumulated points)

$536 \leq x \leq 550$	A+	(unless a test is missed, or homework score is less than 50%).
$509 \leq x < 536$	A	(unless a test is missed, or homework score is less than 50%)
$495 \leq x < 509$	A-	
$481 \leq x < 495$	B+	
$454 \leq x < 481$	B	
$440 \leq x < 454$	B-	
$426 \leq x < 440$	C+	
$399 \leq x < 426$	C	
$385 \leq x < 399$	C- *Note: a C- may not meet the prereq for some courses or requirements of some programs	
$330 \leq x < 385$	D	
$x < 330$	F	

No "Incomplete" (I) grades will be given.

MATH 1430 APPLIC. OF CALCULUS I
UNM-VALENCIA
PROF. CLIFTON MURRAY

SPRING 2021

HMWK ASSIGNMENTS MIGHT BE MODIFIED BY PROFESSOR AS COURSE PROGRESSES.

MON	WED
18 JAN MARTIN LUTHER KING DAY	20 JAN REVIEW FUNCTION-TYPES: LINEAR: HMWK 1.1 # 1, 6, 7, 9, 11, 15, 61, 66, GENERAL: 2.1 # 17, 21, 26, 45, 51, 57, 59
25 JAN RVW FUNCTIONS, CONTIN. QUADRATIC: INSTRUCTOR'S EXAMPLES. HMWK 2.2 # 60 EXPONENTIAL } 2.4 # 3, 4 LOG } 2.5 # 1, 7, 13, 15, 21, 23, 41, 43, 69, 92	27 JAN INTRO TO LIMITS 3.1 # 1, 2, 3, 4, 5, 6, 9, 13, 15, 16, 31, 33, 39, 41, 43.
1 FEB FINISH LIMITS: 3.1 # 84, 87, 94 FUNCTION CONTINUITY 3.2 # 3, 5, 7, 9, 11, 35 (OMIT PART "F," UNCLEAR QUESTION)	3 FEB RATES OF CHANGE 3.3 # 1, 5, 7, 9, 15, 17, 25, 36a, b.
8 FEB DEFINITION OF THE DERIVATIVE 3.4 # 1, 3, 11, 13, 15, 21, 25, 49, 56, 59	10 FEB REVIEW
15 FEB TEST # 1	17 FEB FASTER WAY OF FINDING DERIVATIVES OF X^n: POWER RULE 4.1 # 1, 3, 5, 7, 9, 11, 17, 19, 56, 60
22 FEB DERIVS OF PRODUCTS, QUOTIENTS, & COMPOSITE FUNCTIONS: 4.2 # 1, 5, 11, 17, 43, 53 4.3 # 1, 3, 7, 9, 21, 25, 45, 57, 59	24 FEB DERIVS OF EXPONENTIAL & LOG FUNCTIONS 4.4 # 1, 5, 9, 11, 13, 19, 21, 40, 46 4.5 # 1, 3, 7, 13, 17, 19, 57, 61
1 MAR RVW	3 MAR TEST # 2
8 MAR Is f(x) INCR OR DECR? 1ST DERIV TEST 5.1 # 1, 3, 5, 13, 17, 29, 31, 45, 57 RELATIVE EXTREMA: 5.2 # 1, 3, 5, 13, 15, 31, 47, 55, 57	10 MAR HIGHER DERIVS, CONCAVITY, CURVE SKETCH. 5.3 # 1, 7, 13, 17, 29, 35, 41, 75, 81, 87 5.4 # 3, 7
15 MAR SPRING	17 MAR BREAK
22 MAR ABSOLUTE EXTREMA 6.1 # 3, 7, 11, 53 6.2 # 11, 25 IMPLICIT DIFFERENTIATION 6.4 # 1, 13, 17, 43, 47	24 MAR RELATED RATES 6.5 # 1, 11, 21 THE DIFFERENTIAL 6.6 # 1, 5
29 MAR RVW	31 MAR TEST # 3
5 APR FINDING ANTIDERIVATIVES: INTRO 7.1 # 5, 7, 9, 13, 15, 27, 29, 43, 59, 65	7 APR HOW EVAL TUFFER ANTI-DERIVS/INTEGRALS: METHOD OF SUBSTITUTION 7.2 # 3, 5, 7, 9, 11, 15, [illegible], 45
12 APR AREA & THE DEFINITE INTEGRAL; FUNDAMENT. THEOREM OF CALC. 7.3 # 1, 11(a) ONLY, 28* *USE MID-POINT ☐ ONLY. 7.4 # 1, 3, 5, 9, 13, 25, 31, 43, 57	14 APR HOW FIND AREA BETWEEN TWO CURVES 7.5 # 1, 3, 9, 42
19 APR NUMERICAL INTEGRATION 7.6 # 1, [illegible]	21 APR FINISH CALC I
26 APR RVW	28 APR TEST 4
3 MAY RVW FOR FINAL	CINCO DE MAYO RVW FOR FINAL
10 MAY FINAL EXAM 1:30-3:30p	12 MAY