MATH 213 Analytic Geometry and Calculus III
Section 004, Spring 2022
Lecture: TR 3:00P–4:15P, DKH 1006
email: gdelape2@gmu.edu

Gary dela Pena, Ph.D.
Office: Exploratory Hall 4415
Office Hours: TR 1:30P–2:45P
By Appointment

Michael Merkle email: mmerkle@gmu.edu
Recitation 310: M 4:30-5:20P, HORIZN 4008
Recitation 311: M 5:25-6:15P, HORIZN 4008
Recitation 312: M 6:20-7:10P, HORIZN 4008

Prerequisites: C or better in MATH 114 or equivalent.

Course Objectives: MATH 213 is primarily for students in mathematics, engineering the sciences and other areas requiring strong mathematical backgrounds. The purpose is to give students a basic understanding of the concepts of calculus of several variables, a basic understanding of vector valued functions, partial derivatives, multiple integrals and topics from the calculus of vectors.

Textbook: Thomas, G.B. *Calculus Early Transcendentals*, 14th Edition, Pearson Publishing, 2018.

MYMATHLAB ACCESS CODE IS NOT REQUIRED

Grading : Your grade will be determined out of a possible 325 points:

Midterm Test (2)	160 points (80 points per test)
Final exam (1)	125 points
Worksheets (7)	35 points (5 points per worksheet)
Total	320 points

Grades will be assigned according to the following scale:

A	A−	B+	B	B−	C+	C	C−	D	F
100–93	92–90	89–87	86–83	82–80	79–77	76–73	72–70	69–60	59–0

Tests: There will be two (2) midterm tests and a final exam. It is expected that students will take the test in class at the scheduled time.

Homework: Homework will be assigned each class period and it is assumed that you will complete the assignment before the next class period. While homework will neither be collected nor graded it is highly recommended that you complete all assignments.

Worksheets: There will be a total of ten (10) worksheets, (see course schedule when they are given). **If you are not in class on the day a worksheet is given there will be no make-up for that worksheet**. The three (3) lowest worksheet grades will be dropped

Makeup exams will only be given to students with an acceptable excuse. The only acceptable excuses are **religious holy day, family emergency, school sponsored event, job interviews, or sickness**. All absences require documentation. **All other absences will be given a zero for that test. No exceptions!** All make-up exams will be administered at the Math Testing Center (Exploratory Hall 4107).

Important Dates

January 31: is the last day you can add a class. If your name is not on my class roll then you cannot take this class.

February 07 Last day to drop with no tuition penalty (100% Tution Refund).

February 14 Last Day to Drop with 50% tuition penalty.

March 02–April 11: Selective Withdrawal Period. If you stop attending classes and plan to withdraw from the course, it is your responsibility to withdraw from the course. You will not be able to withdraw yourself from the course after the above dates. **IF YOU DO NOT WITHDRAW BEFORE APRIL 11 AND YOU STOP ATTENDING CLASSES YOUR FINAL GRADE WILL BE AN F**.

Students with Disabilities: If you have a documented learning disability or other condition that may affect academic performance you should:

1. Make sure this documentation is on file with Office for Disability Services (SUB I, Room 4205; 993-2474; http://ods.gmu.edu) to determine the accommodations you need; and
2. Inform me so we can discuss your accommodation needs.

Policy on Academic Dishonesty GMU is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. It is the responsibility of each student to ensure that other persons are not permitted access to answers to exams or quizzes or assignments which are required to be the sole work of each student. **IF A STUDENT IS SUSPECTED OF ACADEMIC DISHONESTY ON ANY EXAM OR QUIZ OR ASSIGNMENT REQUIRED TO BE THE SOLE WORK OF THE STUDENT, THE FOLLOWING PROCESS WILL APPLY**:

> At a minimum, a ZERO (0) on that exam or quiz or assignment and incident reported to the Honor committee.

See *academicintegrity.gmu.edu* for a copy of the Honor Code.

Obtaining Help: Math Tutoring center located at Johnson Center, Room 344, will be open starting January 31 for both in-person and online-tutoring. Check the link below for hours of operation:

https://science.gmu.edu/academics/departments-units/mathematical-sciences/math-tutoring/tutoring-center-hours-and

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The following calendar gives a timetable for the course and the list of sections in the textbook, with suggested problems. The schedule is subject to change.

Week/Date	Section/Activity	Suggested Problems
Week 1	12.1 Three Dimensional Coordinate System	1,11,15,18,21,23,27,29,37,39,53,57
	12.2 Vectors	2,4,6,8,11,17,24,27,29,32,43
Week 2 (W1)	12.3 The Dot Product	3,7,8,11,14
	12.4 The Cross Product	3,5,7,13,14,17,21,23,37,43
Week 3 (W2)	12.5 Lines and Planes in Space	3-11 odd, 15,19,24,29,35,37,41,63,65
	12.6 Cylinders and Quadric Surfaces	1-12, 13-32 odd
Week 4 (W3)	13.1 Curves in Space and Their Tangents	1-30 odd, 31-36
	13.2 Integrals of Vector Functions	1-10 odd,13,19,22,24,25,26,27
Week 5 (W4)	13.3 Arc Length in Space	1-10 odd, 11 13, 17
	13.4 Curvature and Normal Vectors	1,3,5,7,9,13,15
Week 6	14.1 Functions of Several Variables	1,3,5,7,11,13-30 odd,31-36,37,43,49,51
	TEST I-MARCH 3	12.1-12.6, 13.1-13.4
Week 7 (W5)	14.2 Limits and Continuity in Higher Dimensions	1-12 odd,13,17,31,33,41,43,45
	14.3 Partial Derivatives	1-34 odd, 41,43,45,47,55,57,59
Week 8	**SPRING BREAK**	
Week 9 (W6)	14.4 Chain Rule	1,4,5,9,11,13,17,19,27,29,31,35,37
	14.5 Directional Derivatives and Gradient Vectors	1-28 odd, 31, 32, 34
Week 10 (W7)	14.7 Extreme Values and Saddle Points	1-30 odd, 31, 35
	15.1 Double and Iterated Integrals over Rectangles	1-16 odd, 17, 21, 23
Week 11 (W8)	15.2 Double Integrals over General Regions	1-8 odd,9,11,15,17,19,23,29,31,33,39,41
	15.3 Area by Double Integration	1-18 odd, 19, 21
Week 12	15.4 Double Integrals in Polar Coordinates	1-22 odd, 23, 25
	TEST II-APRIL 14	14.1-14.7
Week 13 (W9)	15.5 Triple Integrals in Rectangular Coordinates	3,5,7,11,15,19,22,26,27
	15.7 Triple Integrals in Cylindrical and	1-22 odd,23,27,29,31,38,43,45,47,49
	Spherical Coordinates	
Week 14 (W10)	15.8 Substitution in Multiple Integrals	1-10 odd
	16.1 Line Integrals of Scalar Functions	1-8, 9-32 odd
Week 15	16.2 Vector Fields and Line Integrals	1-4 7-18 odd
	Circulation and Flux	
	16.3 Path Independence, Conservative Fields	1-6, 7-22 odd
	and Potential Functions	
MAY 12	**FINAL TEST, 1:30P – 4:15P**	15.1-15.5, 15.7, 16.1-16.3

Note: (W#) indicates worksheet number; worksheets are given on the second meeting of the week (Thursdays)