Math 2415.221CL
Calculus III
Fall 2022
MW 7:30 – 9:20 pm in STE 103

Professor: Dr. Jason Duvall
E-mail: jduvall3@com.edu
Telephone: n/a

Student (office) hours and location: 7:00 – 7:30 near STE 103

Required Textbook/Materials:
The textbook used in this course is Thomas' Calculus, Early Transcendentals, by Hass, Heil and Weir, 14th edition, published by Pearson.

A graphing calculator is needed for this course. A Texas Instruments TI 83 Plus or TI 84 Plus is recommended. A TI 89 or higher cannot be used in this course.
You will need access to the internet to gain access to course materials using the MML (MyMathLab). If you do not have your own internet access, you can get access on campus in the Innovations Computer Lab, TVB 1324, the Library and the Tutoring Center, TVB 1310.

Course Description:
Advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral, including Green's Theorem, the Divergence Theorem, and Stokes' Theorem. Prerequisite: MATH 2414 grade "C" or better.

Course requirements:
- **Homework Assignments on MyMathLab:** There is a homework assignment for each unit covered. These are listed on the course outline of this syllabus. Each day's homework assignments must be completed by 11:59 pm on the due date shown on both the course outline and on the list of assignments on MML.

- **Quizzes on MyMathLab:** Quizzes will be done on MyMathLab. Like the homework assignments, the due dates are shown on both the course outline on this syllabus and on

the assignment list on MyMathLab. Unlike the homework assignments, the quizzes must be taken in one sitting, they are timed, and the student gets only one attempt to answer each question. There is a lockdown browser on all quizzes. The quizzes may be retaken one time. The higher of the two grades will be used to determine the student's quiz average.

- **Chapter Exams:** There are four chapter exams and a comprehensive final exam. All the quizzes are to be done online using MML. You can retake each quiz just once to improve your score; the higher score will be the one that counts. All exams are taken in the classroom. There are no retakes on any of the exams.

Determination of Course Grade/Detailed Grading Formula:

Comprehensive Final Exam   16%
Average of Chapter Exams   64%
Homework Average   10%
Quiz Average   10%
Final Average   100%

Grading Scale:

Grade A: Final Average in [89.5, 100]
Grade B: Final Average in [79.5, 89.5)
Grade C: Final Average in [69.5, 79.5)
Grade D: Final Average in [59.5, 69.5)
Grade F: Final Average in [0, 59.5)

Late Work, Make-Up, and Extra-Credit Policy:

There is a twenty-point penalty for all homework and quizzes submitted after the due date. There are no make-up exams unless: 1) the student notifies the instructor before the exam due date, and 2) the reason for the requested make-up exam is extraordinary.

Attendance Policy: Attendance is required per college policy.

Communicating with your instructor:

All electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means.

Table Mapping SLO's and Core Objectives:

Student Learner Outcomes	Maps to Core Objective	Assessed via this assignment

1. Perform calculus operations on vector valued functions, including derivatives, integrals, curvature displacement, velocity, acceleration and torsion.	Empirical and Quantitative Skills	Exam
2. Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals.	Critical Thinking Skills	Exam
3. Find extrema and tangent planes.	Critical Thinking Skills	Exam
4. Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, the Divergence Theorem, and Stokes' Theorem	Communication Skills	Exam
5. Apply the computational and conceptual principles of calculus to the solutions of real-world problems.	Critical Thinking Skills	Exam

Academic Dishonesty:

College of the Mainland is committed to a high standard of academic integrity. All students are responsible for honesty and independent effort. Incidents of academic and scholastic dishonest (including cheating, plagiarism, and collusion) will be dealt with in a manner that is consistent with College Policy and the Student Handbook. Any student found to have be academically dishonest on an assignment, quiz or exam will receive a zero for that assignment, quiz or exam and he or she will be referred to the Office of Student Conduct for further disciplinary action. Please read the sections of *Standards of Student Conduct and Discipline and Penalties* in the on-line Student Handbook.

Student Concerns:

If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact Leslie Richardson, Math & Computer Science Department Chair, at 409-933-8329 or lrichardson@com.edu.

Course Outline:

Week	Topic	Section	Due
1	Three-Dimensional Coordinate Systems	12.1	
	Vectors	12.2	
	The Dot Product	12.3	

	Quiz 1: Sections 12.1-12.3	
2	The Cross Product	12.4
	Lines and Planes in Space	12.5
	Cylinders and Quadric Surfaces	12.6
	Quiz 2: Sections 12.4-12.6	
3	***** Labor Day Holiday September 5th*****	
	Curves in Space and their Tangents	13.1
	Integrals of Vector Functions	13.2
	Arc Length in Space	13.3
	Quiz 3: Sections 13.1-13.3	
4	Curvature and Normal Vectors of a Curve	13.4
	Tangential & Normal components of Acceleration	13.5
	Velocity & Acceleration in Polar Coordinates	13.6
	Quiz 4: Sections 13.4-13.6	
	Review	
5	**Exam 1 Sections 12.1 – 13.6**	
	Functions of Several Variables	14.1
	Limits and Continuity in Higher Dimensions	14.2
	Quiz 5: Sections 14.1-14.2	
6	Partial Derivatives	14.3
	The Chain Rule	14.4
	Directional Derivatives and Gradient Vectors	14.5
	Quiz 6: Sections 14.3-14.5	
7	Tangent Planes and Differentials	14.6
	Extreme Values and Saddle Points	14.7
	Lagrange Multipliers	14.8
	Quiz 7: Sections 14.6-14.8	
8	Taylor's formula for 2 variables	14.9
	Partial derivatives with constrained Variables	14.10
	Quiz 8: Sections 14.9-14.10	
	Review	
9	**Exam 2: Sections 14.1-14.10**	
	Double and Iterated Integrals over rectangles	15.1
	Double Integrals over General Regions	15.2
	Quiz 9: Section 15.1-15.2	
10	Area by Double Integration	15.3
	Double Integrals in Polar form	15.4
	Triple Integrals in Rectangular Coordinates	15.5
	Quiz 10: section 15.3-15.5	
11	Applications	15.6
	Triple Integrals in Cylindrical & Spherical Coordinates	15.7
	Substitution in Multiple Integrals	15.8
	Quiz 11: Sections 15.6-15.8	
12	**Exam 3: Sections 15.1-15.8**	
	Line Integrals and scalar Functions	16.1
	Vector Fields & Line Integrals:Work, Circulation, Flux	16.2
	Quiz 12: Sections 16.1-16.2	
13	Path Independence, Conservative Fields, Potential Fcts	16.3
	Green's Theorem in the Plane	16.4
	Surface and Area	16.5

	Quiz 13: Sections 16.3-16.5	
14	Surface Integrals	16.6
	Stoke's Theorem	16.7
	The Divergence Theorem, a Unified Theory	16.8
	Quiz 14: Sections 16.6-16.8	
	*** Thanksgiving Holiday November 24 – 27 ***	
15	**Review**	
	<mark>**Exam 4: Sections 16.1-16.8**</mark>	
16	**Review**	
	<mark>**Final Exam**</mark>	

W-day: November 18th

The syllabus is subject to change at the discretion of the instructor.

Institutional Policies and Guidelines

Grade Appeal Process: Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook.<https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf. *An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor's professional judgment of the quality of the student's work and performance is also not an admissible basis for a grade appeal.* https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf

Academic Success & Support Services: College of the Mainland is committed to providing students the necessary support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

ADA Statement: Any student with a documented disability needing academic accommodations is requested to contact Holly Bankston at 409-933-8520 or hbankston@com.edu. The Office of Services for Students with Disabilities is located in the Student Success Center.

Counseling Statement: Any student needing counseling services is requested to please contact Holly Bankston in the student success center at 409-933-8520 or hbankston@com.edu. Counseling services are available on campus in the student center for free and students can also email counseling@com.edu to set up their appointment. Appointments are strongly encouraged; however, some concerns may be addressed on a walk-in basis.

Textbook Purchasing Statement: A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Withdrawal Policy: Students may withdraw from this course for any reason prior to the last eligible day for a "W" grade. Before withdrawing students should speak with the instructor and consult an advisor. Students are permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 16-week session is November 18th .

F_N Grading: The F_N grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The F_N grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the F_N grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an F_N grade.

Early Alert Program: The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention are very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

COVID-19 Statement: All students, faculty, and staff are expected to familiarize themselves with materials and information contained on the College of the Mainland's Coronavirus Information site at www.com.edu/coronavirus. In compliance with Governor Abbott's May 18 Executive Order, face coverings/masks will no longer be required on COM campus. Protocols and college signage are being updated. We will no longer enforce any COM protocol that requires face coverings. We continue to encourage all members of the COM community to distance when possible, use hygiene measures, and get vaccinated to protect against COVID-19. Please visit com.edu/coronavirus for future updates.