A. COURSE INFORMATION

Course number/section: Math 2415-001
Class meeting time: Lecture TR 12:00-1:53pm
Class location: Online
Course Website: bb9.tamu.edu

B. INSTRUCTOR INFORMATION

Instructor: Dr. Aubrey Rhoden
Office location: CI 213B
Office hours: 12-2 pm W and 2-4 pm TR
Telephone: 361-825-3445
e-mail: aubrey.rhoden@tamucc.edu
Appointments: Appointments outside of office hours are available by request

C. COURSE DESCRIPTION

Catalog Course Description
Parametric equations, vectors, functions of two and three variables. Contains a laboratory component.

Extended Course Description
Dot products, cross products, surfaces, tangent planes, partial derivatives, double and triple integration, change of variables, center of mass and first and second moments of 3D objects with variable density, vector fields, line integrals, Green's Theorem, surface integrals, Stokes' Theorem, Divergence Theorem

Serves as a prerequisite for Fluid Mechanics, Electromagnetism, Thermodynamics, Quantum Physics, Nuclear Physics, Introduction to Analysis, Partial Differential Equations, and Introduction to Mathematical Statistics. Also aids the study of Physical Chemistry.

D. PREREQUISITES FOR THE COURSE

Prerequisites
MATH 2414

Corequisites
Enrollment in a lab.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
Calculus: Early Transcendentals, 8th Ed. By J. Stewart
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Use and convert among Cartesian, parametric, polar, and cylindrical coordinate systems.
   (a) graph a parametric curve
   (b) convert between rectangular and polar coordinates
2. Calculate dot and cross products as needed for vectors and vector valued functions and gradients.
   (a) calculate and use dot products and cross products of vectors
   (b) give the equation of a plane in 3 dimensional space
3. Calculate and apply derivatives and integrals for vector-valued functions.
   (a) calculate derivatives and integrals of vector-valued functions
   (b) calculate arc length for vector-valued functions
4. Calculate and apply derivatives and integrals for functions of several variables.
   (a) match 3d plots and contour plots of functions in 2 variables
   (b) calculate and use partial derivatives
   (c) calculate tangent planes to the graph of a function in two variables
   (d) use the chain rule for functions in several variables
   (e) take directional derivatives and determine gradient vectors
   (f) determine minimum and maximum values of functions in several variables with or without constraints
   (g) change the order of integration in multiple integrals
5. Represent integrals in various forms using transformations (substitutions) and Green’s, Stokes’ and the Divergence Theorems.
(a) use the change of variable formula for multiple integrals
(b) evaluate line integrals
(c) state and use Green’s theorem

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Weekly Homework: Homework will be assigned each week through webassign and is due on Sundays.

Attendance: Attendance for this course and its associated labs is required. Excellent attendance records as well as positive group evaluations will help your grade in that borderline course-grade decisions will be influenced by these records. It is in your best interest to arrive on time to class (quizzes take place during the first ten minutes of lab and homework is due at the beginning of class)

Lab Information: Again, attendance is required. In the lab, you will:

- work on computer based labs to learn how to program the mathematics taught during lecture.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Note: Blackboard does not average with these percentages.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Midterm 1</td>
<td>15%</td>
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<tr>
<td>Midterm 2</td>
<td>15%</td>
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<tr>
<td>Midterm 3</td>
<td>15%</td>
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<tr>
<td>Final Exam</td>
<td>25%</td>
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<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Labs</td>
<td>20%</td>
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I. COURSE CONTENT/SCHEDULE

Important dates:
June 1       First Day of Classes
June 18      Midterm 1
July 9        Midterm 2
July 23       Midterm 3
August 4      Last Day of Classes
August 6      Final Exam
Schedule:
Week 1    Syllabus, 12.1 - 12.4
Week 2    12.5 - 13.4
Week 3    Review, and Test
Week 4    14.1 - 14.6
Week 5    14.5 - 14.8
Week 6    Review, and Test
Week 7    15.1 - 15.5
Week 8    Review and Test
Week 9    16.1 - 16.4, 15.7, and 15.8
Week 10   15.9, 16.6 - 16.9
Week 11   Review and Final exam

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Attendance/Tardiness
Attendance for this course is required.

Late Work and Make-up Exams
Late work is not accepted unless previously approved. In the event of an excused absence for an exam, it is the student’s responsibility to arrange for a time to make up the exam as soon as possible.

Extra Credit
Extra credit will be given on some assignments for completing advanced problems, but there will be no extra credit assignments given to students on an individual basis to improve a grade.

Cell Phone Use
Cell phone use is not allowed during class.

Laptop Use
Laptop or tablet use is not allowed during class.

Food in Class
Food is not allowed in the classroom.

Missed Exam
All absences from class or exams will be considered unexcused unless they are documented in advance as excusable with the instructor or as soon as possible in the case of emergencies. No credit will be awarded for work missed resulting from unexcused absences.
Participation
Participation in class discussion is important, and students that actively participate generally gain a better understanding of the material.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
Univeristy students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• Classroom/Professional Behavior
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in Article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• Statement of Civility
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• Deadline for Dropping a Course with a Grade of W (University)
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.
Grade Appeals (College of Science and Engineering)
As stated in University Procedure 13.02.99.C0.03, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is required to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C0.03, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://academicaffairs.tamucc.edu/rules_procedures/assets/13.02.99.c0.03_student_grade_appeals.pdf

Disability Services
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

http://disabilityservices.tamucc.edu/

Statement of Academic Continuity
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.
L. OTHER INFORMATION

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

- **Civil Rights Reporting Info**
  Texas A&M University-Corpus Christi is committed to fostering a culture of caring and respect that is free from discrimination, relationship violence and sexual misconduct, and ensuring that all affected students have access to services. For information on reporting Civil Rights complaints, options and support resources (including pregnancy support accommodations) or university policies and procedures, please contact the University Title IX Coordinator, Sam Ramirez (Samuel.ramirez@tamucc.edu) or Deputy Title IX Coordinator, Rosie Ruiz (Rosie.Ruiz@tamucc.edu) x5826, or visit website at Title IX/Sexual Assault/Pregnancy.

Limits to confidentiality. Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University’s student record policies. However, students should be aware that University employees, including instructors, are not able to maintain confidentiality when it conflicts with their responsibility to report alleged or suspected civil rights discrimination that is observed by or made known to an employee in the course and scope of their employment. As the instructor, I must report allegations of civil rights discrimination, including sexual assault, relationship violence, stalking, or sexual harassment to the Title IX Coordinator if you share it with me.

These reports will trigger contact with you from the Civil Rights/Title IX Compliance office who will inform you of your options and resources regarding the incident that you have shared. If you would like to talk about these incidents in a confidential setting, you are encouraged to make an appointment with counselors in the University Counseling Center.

**GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.