SYLLABUS

Embry-Riddle Aeronautical University

Daytona Beach Campus

Course Number: MA 243
Term   Fall 2023
Instructor: Dr. E. Jacobs
Office: COAS 301.36

Office Hours: Mon, Tues, Wed, Fri: 2:30 - 3:30 PM
E-Mail Address: jacobs50@xecu.net

Course Title: Calculus III   Cr. Hrs.   4
Meetings: MWF at 5:00 - 5:50 in COAS 317 and Tues at 5:15 - 6:30 in COAS 318

Course Text: *Thomas' Calculus (Early Transcendentals)* by Hass, Heil and Weir
Course Description:

Solid analytic geometry; vector functions in three dimensions; elements of infinite series; partial differentiation; directional derivative and gradient; multiple integrals.
Prerequisite: MA 242

Goals:

This course is required in the following degree programs: Aerospace Engineering, Electrical Engineering, Avionics Technology and Engineering Physics. Its purpose is to provide the student with the ability to apply the tools of calculus to vector-valued functions and to functions of several variables that can arise in complex engineering and scientific problems.

Performance Objectives: The following is a minimal list of skills that you must attain. The requirements of the course include but are not limited to this list.

1. Solve problems of analytic geometry in 2 and 3 dimensions using algebraic and geometric properties of vectors.

2. Graph, differentiate and integrate vector-valued functions of a real parameter, and apply these methods to problems involving velocity and acceleration.

3. Construct equations of lines, planes and quadric surfaces and sketch their graphs.

4. Compute partial derivatives, directional derivatives and gradients and interpret these quantities graphically.

5. Set up and calculate double integrals over a variety of two dimensional regions using either rectangular or polar coordinate systems as needed to perform the integrations.

6. Set up and calculate triple integrals over a variety of three dimensional regions using rectangular cylindrical or spherical coordinate systems as needed to perform the integrations.

7. Compute area, volume, surface area, mass and centroids using double and triple integrals.

8. Calculate line and surface integrals.

<u>Grading</u>:

The grade in this course will be computed from homework and exams. There are four exams altogether, including the final exam. All exams are equally weighted.

Exam Average	85%
Assignments	15%

Grade in the course is determined by the following scale:

Avge of HW and Exams:	90 - 100	80 - 89	70 - 79	60 - 69	Below 60
Grade in Course:	A	B	C	D	F

<u>Office Hours</u>:   Mon, Tues, Wed, Fri: 2:30 - 3:30 PM

<u>Conduct During Exams</u>:

Students will not be allowed to use any formula sheets or notes on exams. Students may not receive assistance from classmates or attempt to copy the work of a classmate during an exam.

<u>Missed Exams</u>:

A student who misses a regularly scheduled exam may, at the discretion of the instructor, take a make-up exam. However, the student must contact the instructor within 24 hours of the original exam to be eligible for a make-up exam.

<u>Disability Support Services</u>:

Those students who have been appropriately certified by the DSS office may take their exams there. Students will be required to complete all relevant DSS paperwork no later than one week before the exam. Since exams are announced a month in advance, this should pose no hardship to any student.

<u>Calculator</u>:

You may need a scientific calculator on some exams. There are only two restrictions on calculators. First, no graphing calculators on Exam 1. Graphing calculators may be used for all other exams, although you may not use a calculator capable of calculating derivatives and integrals.

<u>Homework Assignments</u>:

All homework will be submitted online via Canvas. Write your homework on paper and upload a scanned copy to Canvas. I prefer .pdf format for the file. If your homework is two or more pages long, merge all the scans of your pages into one file before uploading. Make sure that your submitted assignments are legible, clear and concise.

<u>Attendance</u>:

Attendance is noted. A student's attendance record will not be counted toward the final course grade except for borderline cases.