

Math 231-01, Analytic Geometry and Calculus III

Dr. Flórez

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Rooms: Thompson 315.

Meeting Times: MTWF 10:00-10:50AM

Office hours: T & Th at 9:00-9:50AM.

Office hours by appointment: M & W 4:30-5:30PM.

Other times by appointment, don't hesitate to contact me if you need extra office hours.

Text: Calculus, Early Transcendentals
Stewart, J.
Eight Edition 2015
ISBN 978-1-285-74155-0

Note: E-book is allowed.

Students Learning Outcomes

This course will emphasize outcomes in:

- Developing critical thinking.
- Focusing on importance of logical reasoning.
- Developing skills to model identify and analyze data.
- Learning a language and symbols such that the students can use precise communication.
- Developing tools that help the student to solve problems of real life.
- Understanding the vector concept and its properties.
- Understanding the concept of vector function and its geometric representation.
- Learning techniques and properties of partial derivatives.
- Learning techniques and properties of multiple integrals.
- Understanding the concept infinite sequences and series.
- Solving problems using vector calculus.

At the end of the course, the students will be able to do the following.

- Solve problems that involve dot and cross product.
- Solve words problems that involve cylindrical and quadratic surfaces.
- Evaluate derivative and integrals of vector functions.
- Evaluate partial derivatives.
- Recognize the chain rule.

- Apply the optimization rules to solve real life problems.
- Apply multiple integration to solve problems involving volumes.
- Solve line integrals.
- Describe Green's Theorem.

Attendance:

From a student is expected to attend classes and attendance will be taken each class period. *Sleeping in class, leaving early, being late, playing or using your cell phone during lecture or any other electronic device will be considered as an absence.* That is, if you are physically in the classroom, but you are doing something else other than paying attention to the lecture, then you are not in class. There will be no distinction made between excused and un-excused absences. If it is necessary for a student to miss a class, it is the student's responsibility to get the class notes. Six absences (excused or otherwise) may result in your grade being lowered by up to one letter. Twelve absences of scheduled class sessions are excessive and it will result in a course grade of F.

Homework:

Homework shall be assigned every class period (it will be online) and it is assumed that an attempt has been made to do that homework by the next class period. The scores of total homework will be in the rank 0-50 points. Assignments will be due at 11:59pm the night before the next class. To register for online homework go to www.webassign.net

Instructor	Section	Class Key
Rigo Florez	Math231, section 01-02	citadel 0654 9646

Hand-in Assignments:

There will be 10 hand-in assignments with problems most of them from the book; these, count 5 points each for a total of 50 points. I grade only two questions. If both are correct, the student will receive 4.0 points (**no partial credit**) and will receive 1 point for just working the complete assignment, no credit for incomplete or overdue assignments.

The 10 hand-in assignments usually require quantitative answers, but the student still needs to show clear work. Students need to develop the ability to write or show work so that other people can follow their thought processes.

Test:

There will be four tests and a comprehensive final examination. Anyone absent on the day of a scheduled test must provide verifiable written evidence supporting your absence. Failure to do so will result in a score of zero for that test. The instructor gets to determine whether or not an excuse is valid. In particular, guard duty is not an acceptable excuse for missing an assigned test. When possible, students should notify the instructor in advance if they will be unable to take an assigned test. All make-up tests will be given outside of normal class time. A make-up test should be taken in a period of no longer than eight days of the schedule test. Failure to do so will result in a score of zero for that test.

Failure to take the final examination will result in an "F" grade for the course. The scores of each test will be in the rank 0-100 points. The scores of Final exam will be in the rank 0-150 points.

I will not answer any question about grades via e-mail or phone. I will not hand back any homework, quiz, test or exam to anyone but the person in question. So, if you are not present when I hand back any graded stuff you will need to come to my office during the office hours to pick it up.

General Expectations:

- Class Notes: It is your sole responsibility to take organized, clear and accurate class notes. These will come in handy when you study for exams and work on projects. Please read your class notes before asking questions during office hours.
- **Cell phones** are not allowed in class. That is, don't keep phones in your hands.
- *Graphing calculators* are allowed in class, but they are not allowed in tests.
- **School e-mail:** All e-mail communication will go to your school e-mail. Make sure you check this e-mail every day.

Tentative test date:

First test: February 2
Second test: February 23
Third test: March 23
Fourth test: April 18
Final exam: April 30 at 1:00-4:00PM (Monday)

Grading scale

A	B	C	D	F
100-90	89-80	79-70	69-60	59-0

Final grade = $(T1 + T2 + T3 + T4 + \text{Final E.} + \text{HW} + \text{HA})/6.5$

HW: = Homework; HA: = Hand-in Assignments.
Final E: = Final Exam; T1, T2, T3, T4: = tests 1, 2, 3, and 4;

Topics to be Covered

- Section 12.1 Three-Dimensional Coordinate Systems
- Section 12.2 Vectors
- Section 12.3 The Dot Product
- Section 12.4 The Cross Product
- Section 12.5 Equations of Lines and Planes

Section 12.6 Cylinders and Quadric Surfaces

Section 13.1 Vector Functions and Space Curves

Section 13.2 Derivatives and Integrals of Vector Functions

Section 13.3 Arc Length and Curvature

Section 13.4 Motion in Space: Velocity and Acceleration

Section 14.1 Functions of Several Variables

Section 14.3 Partial Derivatives

Section 14.4 Tangent Planes and Approximations

Section 14.5 The Chain Rule

Section 14.6 Directional Derivatives and the Gradient Vector

Section 14.7 Maximum and Minimum Values

Section 15.1 Double Integrals Over Rectangles

Section 15.2 Double Integrals over General Regions

Section 15.4 Double Integrals in Polar Coordinates

Section 15.5 Surface Area

Section 15.6 Triple Integrals

Section 15.7 Triple Integrals in Cylindrical Coordinates

Section 15.8 Triple Integrals in Spherical Coordinates

Section 16.1 Vector Fields

Section 16.2 Line Integrals

Section 16.3 The Fundamental Theorem for Line Integrals

Section 16.4 Green's Theorem