

Syllabus

Math 241- Vector Calculus Section 014 Spring 2012

Professor: Holt
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Office: STAR 125B
Office Hours: 8:30-9:30 am, 2:30-3:30 pm T,TH
10:00-12:00, 2:00-3:00 pm M,W

Required Text: Calculus: Early Transcendentals, 6E (Stewart),

General Information

Course Description. Vector algebra, geometry of three-dimensional space; lines, planes, and curves in space; polar, cylindrical, and spherical coordinate systems; partial differentiation, max-min theory; multiple and iterated integration, line integrals, and Green's theorem in the plane.

Course Information. Students are expected to have completed Math 142 with a grade of C or better.

This purpose of this course is to extend the theory of the calculus of functions in one variable, to functions of many variables. We will generalize the well understood operations of differentiation and integration to functions of many variables. We'll also generalize the rules of differentiation, the notions of tangent line approximations, optimization and area. Finally, we'll develop the fundamental concepts of Vector Calculus including line and surface integrals, the very important theorems of Green and Stokes, and the divergence theorem.

Learning Outcomes. Upon completion of this course, the student will be able to:

1. Differentiate and integrate functions of several variables.
2. Use the Lagrange multiplier method to solve problems of optimization.
3. Calculate derivatives and integrals of vector valued functions
4. Calculate line and surface integrals

Class Hours and Location. The location for this class is STAR 123. Class days and hours are T, TH 1:00-2:15 pm.

Classroom Etiquette. No electronic recording devices may be used in class without prior approval from the instructor. Students are asked to turn off all cell phones, pagers, and laptop

computers while class is in session. Friends and children of the student will not be permitted in the classroom while class is in session.

Academic Integrity. It is the responsibility of every student in this class to avoid dishonesty, fraud, or deceit of any type. Work submitted for grading must be completed by the student and the student alone. Any student who violates this policy or who knowingly assists another to violate this policy shall be subject to discipline, and may include sanctions up to and including removal from the class with a grade of F. Please see the University of South Carolina Honor Code for more information at (<http://www.sc.edu/academicintegrity/honorcode.html>).

Grading. The student will complete 3 in-class tests, homework and a final exam. Each in-class test will be 1 hour in length. Each test is worth 100 points towards the final numerical grade. The total of all homework grades will supply a possible total of 100 points to the final grade. The final exam will count up to 150 points towards the student's final grade, depending on the number correct. In no event shall a makeup be offered for any in-class test or the final exam, and late homework submissions will be reduced by 10% per day late. At the end of the semester, the student will have accumulated at most 550 points.

The final recorded letter grade will be A,B,C,D or F as follows:

A	494<FNG
B+	478<FNG<495
B	439<FNG<479
C+	423<FNG<440
C	384<FNG<424
D+	368<FNG<385
D	329<FNG<369
F	FNG<330

In-Class Test Dates. Dates of the in-class tests will be announced in class one week prior to the test date.

Final Exam. The final exam is scheduled for **Tuesday, May 1 from 1:00pm-3:30pm in STAR 123.**

Attendance Policy. Attendance for this class is mandatory and will be taken at some point during each class session. Students will be allowed 4 absences for any reason. Each absence thereafter will result in a reduction of the final numerical grade by 10 points per absence. For each class session, a student arriving after attendance has been taken must contact the instructor immediately following the class in order to be counted present for that lecture. A student must accept an absent mark if they are more than 35 minutes late. Absent students are solely responsible for any material missed while absent.

Calculator Policy. The use of a calculator for the completion of homework is acceptable and strongly advised. Calculators will be allowed on each in-class test and the final exam, however, calculators may not be shared by students during any test and cell phones with calculator

functions may not be used on any test. You will need a graphing calculator. I will occasionally use the TI-83 graphing calculator for classroom instruction, although any scientific calculator will suffice. The use of the TI-89 graphing calculator, or higher, for the completion of homework and tests will be considered a violation of the student code of academic integrity.

University of South Carolina Lancaster

General Education Goals

General education is the set of fundamental skills (reading, writing, reasoning, and oral communication), the knowledge, and the capacity for thought needed to pursue further learning, to succeed in chosen career fields, and to assume the responsibilities of informed and enlightened citizenship.

Communication Skills

USC Lancaster helps its students read effectively and attain a basic familiarity with the basic texts of Western and other cultures. In the area of writing skills, USC Lancaster students work to develop the ability to write effectively for both academic and professional audiences. In addition, USC Lancaster helps its students learn to listen critically and speak effectively before a group.

Critical Thinking

USC Lancaster helps its students acquire analytical reasoning abilities and exercise informed value judgments. USC Lancaster students also work to develop mathematical and/or computational skills.

Cultural Literacy

USC Lancaster strives to give its students an understanding of the history and culture of Western civilization as well as provide some exposure to other cultures. USC Lancaster also recognizes the centrality of science and technology to modern culture; therefore, the USC Lancaster student is offered opportunities to increase his/her understanding and familiarity in these crucial subject areas.

Student Development

USC Lancaster supports the intellectual, personal, physical, and social development of students, in recognition of the critical interdependency of all these areas. By providing opportunities for productive interaction with students, faculty and staff, USC Lancaster helps students develop a spirit of curiosity, integrity, and confidence in planning and pursuing academic, career, and personal goals.

I, _____ (print name) have read and completely understand all conditions presented in this syllabus. By signing this document, I submit that I understand exactly how my grade will be determined, and I agree to be bound by all conditions contained therein.

Signature _____

Date _____