MATH S1202: Calculus IV
Summer 2018
Section 001

Instructor: Mitchell Faulk
Time: MTWR 1:00-2:35pm
Place: Math 417
Office Hours: MW 10:10-11:25am in Math 610
Teaching Assistant: Jacob Austin (ja3067@columbia.edu)
Webpage: http://math.columbia.edu/~faulk/CalcIVSummer2018

Prerequisites

Calculus III or the equivalent is required.

Description and goals

General goals include

- To develop further techniques for solving higher-dimensional problems occurring in the sciences or engineering, especially those problems involving integration

- To develop further a geometric intuition about vectors and geometric objects in two- or three-dimensional space

The main concepts covered include double and triple integrals; change of variables; line and surface integrals; vector fields and vector integral calculus; Green's theorem; divergence theorem; and Stokes' theorem.

Policies

Grading

The course will be graded on a scale of 450 points, distributed as follows

Homework: 100 points (10 points each)
Quizzes: 100 points (20 points each)
Midterm: 100 points
Final: 150 points

Homework

Most homework will be assigned via WebAssign, due online before class starts. Homework will be due typically twice a week (on Mondays and Wednesdays), except possibly during those weeks of exams.

Quizzes

There will be one quiz per week, at the beginning of class on Thursdays. Each quiz will last about 30 minutes.

If you receive less than a full score on the quizzes, then you can earn back up to half of the points you missed by submitting a new set of solutions. Your solutions must be submitted within one day of receiving your returned quiz.

Exams

There will be one midterm exam and one final exam. The dates are

Midterm exam date: 06/05
Final exam date: 06/28

If you have a conflict with either of these dates, you **must** contact me ahead of time to make arrangements. (At least a week in advance is ideal.)

Textbook and WebAssign

You are required to buy WebAssign. The class key is **columbia 1909 7798**. Use your UNI as your username so that I can identify you.

On the "Calculus Classess" webpage, there is information about purchasing the textbook and WebAssign at a reduced price.

Students with disabilities

In order to receive any disability-related accommodations, students must be registered with Disability Services (DS). Students that have, or think they may have, a disability are encouraged to contact DS for more information regarding policies and services available.

Syllabus and schedule

Date	Material	Textbook	Announcements
05/21	Double integrals over rectangles	§15.1	
05/22	Double integrals over general regions	§15.2	
05/23	Polar coordinates, applications	§15.3, 15.4	HW1 due
05/24	Surface area, triple integrals	§15.5, 15.6	Quiz 1
05/28	HOLIDAY	HOLIDAY	HOLIDAY
05/29	Cylindrical coordinates, spherical coordinates	§15.7, 15.8	
05/30	Change of variables	§15.8, 15.9	HW2 due
05/31	Change of variables	§15.9	Quiz 2
06/04	Review		HW3 due
06/05	**Midterm exam**		
06/06	Vector fields	§16.1	HW4 due
06/07	Line integrals	§16.2	Quiz 3
06/11	Fundamental theorem for line integrals	§16.3	HW5 due
06/12	Green's Theorem	§16.4	
06/13	Curl and divergence	§16.5	HW6 due
06/14	Parametric surfaces, surface area	§16.6	Quiz 4
06/18	Surface integrals	§16.7	HW7 due
06/19	Stokes' Theorem	§16.8	
06/20	Divergence theorem	§16.9	HW8 due
06/21	Complex functions		Quiz 5
06/25	Cauchy-Riemann equations		HW9 due
06/26	Contour integrals and Cauchy's theorem		
06/27	Review		HW10 due
06/28	**Final exam**		

Other advice

This is a fast-paced course, so keeping up to date with material is important. The quizzes are designed to help you in this task. In addition, I strongly encourage you to work on homework assignments early, read the textbook before lecture, and ask questions during lecture if you have any.