

# Course Syllabus

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## MATH 317 101 Calculus IV

September - December 2019

### Description

In this course we study the calculus of vector-valued functions of one or several variables. We will study parametrization, differentiation and integration, length and area on curves and surfaces. We will study vector fields and their operations grad, div, and curl. We will finally study integral theorems of Green, Gauss, and Stokes for vector fields.

### Prerequisite

One of MATH 200, MATH 226, MATH 253. (MATH 221 is recommended.)

### Textbook

[CLP-4 Vector Calculus \(http://www.math.ubc.ca/~CLP/CLP4/\)](http://www.math.ubc.ca/~CLP/CLP4/), by Feldman, Rechnitzer and Yeager

### Topics

1. Curves (6.5hr)  
vector functions and space curves, derivatives and integrals of vector functions, arc length and curvature, velocity and acceleration
2. Vector fields (5hr)  
vector fields, line integrals and its fundamental theorem
3. Surface integrals (8.5hr)  
parametric surfaces and their areas, surface integrals
4. Integral theorems (13hr)  
curl and divergence, divergence theorem, Green's theorem, Stokes' theorem

### Grading

1. Weekly homework (10%) due Wednesdays Sep 18, 25, Oct 9, 16, 23, 30, Nov 13, 20, 27 at 6pm on Canvas, with the lowest score dropped;
2. Two 50-minute midterm exams (20% each) on Wednesdays October 2 and November 6;
3. One 150-minute final exam (50%).

### Canvas

1. Canvas is UBC's mobile-friendly online learning platform.
2. You can log in Canvas with your CWL.
3. Announcements, assignments, practice exams and exam solutions will be all posted in Canvas.
4. You will take photo or scan your assignments and upload them to Canvas.

## Piazza

We will have a forum at Piazza (see link on the sidebar). You can ask and answer questions there. Instructor and TA will occasionally check if there are questions unanswered.

## Policies

1. Calculators and notes are not allowed in the midterm and final exams.
2. Homework assignments are due 6pm at Canvas on Wednesdays. Solutions will be posted on Canvas. A selection of the problems will be graded. If you submit an assignment late, a 25\% penalty will be applied for each day late.
3. Permission to shift the weight of your missed midterms to other exams, or to ignore missed assignments, may be granted only in the following circumstances: (a) prior notice of a valid, documented absence (e.g. out-of-town varsity athletic commitment with a letter from a coach) on the scheduled date; or (b) notification to the instructor of absence due to a medical condition with a doctor's note. Otherwise, a score of 0 will be given for the missed midterms/assignments.
4. The period for final exams is December 3--18, 2019 inclusive. The exact time will be announced by the University in the middle of the term. Students should not make early travel plans that overlap with the scheduled exam period.

## Course Summary:

**Date**

**Details**

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