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, agd 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/) , by Feldman, Rechnitzer and Yeager

Topics

1. Curves (1.1-1.6, 6hr)
   vector functions and space curves, derivatives and integrals of vector functions, arc length and curvature, velocity and acceleration
2. Vector fields (2.1-2.4, 9hr)
   vector fields, line integrals and its fundamental theorem
3. Surface integrals (3.1-3.5, 9hr)
   parametric surfaces and their areas, surface integrals
4. Integral theorems (4.1-4.4, 9hr)
   curl and divergence, divergence theorem, Green's theorem, Stokes' theorem

Important Dates

- First day of class: Wednesday, Sept. 4
- Midterm 1: Wednesday, Oct. 2
- Midterm 2: Wednesday, Nov. 6
- Last day to withdraw: Tuesday, Sept. 17
- Last day of classes: Friday, Nov. 29
- Final exam: TBD

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, in class;
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 on homework and exams

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. However, the Senate had recently changed its policy to allow students to request academic concession without documentations ONCE per course. For such request please fill the **form (http://www.math.ubc.ca/Ugrad/ugradForm/Student_Declaration_Academic_Concession_MATH.pdf)**
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.

UBC's Policies and Resources to Support Student Success

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC

values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available **here (https://senate.ubc.ca/policies-resources-support-student-success)** .

Instructor

1. Tai-Peng Tsai, Math building room 109, phone 604-822-2591, ttsai@math.ubc.ca
2. office hours: Mon Thu 14pm, Tue 11am, and by appointments. (Tsai's **schedule (http://www.math.ubc.ca/~ttsai/schedules/19sep.html)**)

Course Summary:

Date	Details