

UNIVERSITY OF BRITISH COLUMBIA

MATH 317 Section 201 Jan-Apr 2013

## Calculus IV

**Description:** In this course we study the calculus of vector-valued functions of one or several variables.

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

**Textbook:** *Multivariable Calculus, 7th Ed.*, by J. Stewart. Earlier editions are acceptable, but we will assign problems from 7th ed.

### Topics:

- Vector functions of one variable (§13.1–§13.4)  
vector functions and space curves, derivatives and integrals of vector functions, arc length and curvature, velocity and acceleration
- Vector calculus (§16.1–§16.9)  
vector fields, line integrals and its fundamental theorem, Green's theorem, curl and divergence, parametric surfaces and their areas, surface integrals, Stokes' theorem, divergence theorem.

### Grading:

1. Homework 10%, Midterm exams  $20\% \times 2$ , Final exam 50%
2. There are two sections of MATH 317. Both sections cover the same material, have the same grading scheme and assignments, and will write the same final exam. The midterms will be distinct.
3. There will be 12 weekly homework assignments due at the beginning of class on Wednesdays. The first is due January 9. Assignments and solutions will be posted on web. A selection of the problems will be graded. No late homework accepted. The lowest two scores will be dropped.
4. There will be two midterm exams, in class on Fridays February 1 and March 15. Midterm exam marks will be scaled according to the final exam average. If you miss a midterm for a valid medical reason, the weighting for the final exam will be adjusted. There are no make-up exams.
5. The period for final exams is April 10-24, 2013 inclusive. The exact time will be announced by the University by the middle of term. Students should not make early travel plans that overlap with the scheduled exam period.

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**homepage:** <http://www.math.ubc.ca/~ttsai/courses/317-13S/>