MATHEMATICS 317 Section 201

CALCULUS IV

Prerequisite:
- One of MATH 200, MATH 226, MATH 253. MATH 221 is recommended.

INSTRUCTOR:
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PRIMARY TEXT:
- **Feldman and Rechnitzer, CLP–IV Vector Calculus**.
  `http://www.math.ubc.ca/∼feldman/m317/clp/`

SECONDARY TEXTS:
- **Whitman, Community Calculus**, primarily chapters 13 and 16.
  `http://communitycalculus.org`

- **Gilbert Strang, Calculus**, primarily chapters 12 and 15.
  `https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=10`

- **James Stewart, Multivariable Calculus**, seventh edition, chapters 13 and 16. This has been the textbook for this course in the past.

SECTION WEB PAGE: I will post all handouts, problem sets, etc. on the web at
http://www.math.ubc.ca/∼feldman/m317/

TOPICS:
1. Curves (§1):
   Parametrized curves, velocity, acceleration, arc length, curvature, normal and binormal vectors, tangential and normal components of acceleration.
2. Vector Fields and Line Integrals (§2):
   vector fields, conservative fields, line integrals.
3. Surface integrals (§3):
   surfaces, tangent planes, surface area, surface integrals, flux integrals.
4. Integral Theorems (§4):
   gradient, divergence and curl, vector identities,
   divergence theorem,
   Green's theorem, Stokes' theorem, applications.

GRADING:
- There will be two midterms (tentatively scheduled for Wednesday, February 7 and Wednesday, March 14) accounting for about 40% of the final mark.
- There will be weekly problem sets accounting for about 5% of the final mark.
- The final exam will account for about 55% of the final mark.
- Grades **will** probably **be scaled**.

Schedule of Problem Sets and Midterms

	Mon	Wed	Fri
Jan	1 — no class	3	5
	8	10 — Problem Set I	12
	15	17 — Problem Set II	19
	22	24 — Problem Set III	26
	29	31 — Problem Set IV	2
Feb	5	7 — Midterm I	9
	12 — no class	14 — Problem Set V	16
	19 — midterm break	21 — midterm break	23 — midterm break
	26	28 — Problem Set VI	2
Mar	5	7 — Problem Set VII	9
	12	14 — Midterm II	16
	19	21 — Problem Set VIII	23
	26	28 — Problem Set IX	30 — no class
Apr	2 — no class	4 — Problem Set X	6