Mathematics 227 (Advanced Calculus II), Winter/Spring 2014

Section 201: MWF 12:00-12:50, MATH 103

Lecturer: Prof. I. Laba

- Math Bldg 200, (604) 822 4457, ilaba@math.ubc.ca
- Office hours: Monday 1-2, Wednesday 3-4, Friday 11-12, in MATH 200.
- The best way to contact the instructor is by email. Please note that email received on evenings and weekends will be answered on the next business day.
- If you cannot attend regular office hours due to schedule conflict, please make an appointment in advance. Drop-ins and same-day requests for appointments cannot always be accommodated.

Prerequisites: A score of 68% or higher in MATH 226.

Course web page: http://www.math.ubc.ca/~ilaba/teaching/math227_S2014

Homework assignments will be posted here.

Textbook: Robert A. Adams and Christopher Essex, Calculus: Several Variables (or Calculus: A Complete Course), 8th ed. Pearson, 2013, ISBN 978-0-321-87741-3.

Course topics:

- **Vector-valued functions and curves (Chapter 11)**: curves, velocity, acceleration, arc length, curvature, tangent, normal, binormal, planetary motion.
- **Vector fields and line integrals (Sections 15.1-15.4):** vector fields, field lines, conservative fields, line integrals.
- **Surface integrals (Sections 15.5-15.6):** surfaces, surface area, flux integrals.
- **Integral theorems (Chapter 16):** gradient, divergence and curl, vector identities, divergence theorem, Green's theorem, Stokes' theorem, applications.
- **Differential forms (Chapter 17):** differential forms, exterior derivative, generalized Stokes' Theorem (if time permits).

Your course mark will be based on homework (10%), two midterm exams (20% each), and the final exam (50%). The grades may be **slightly** scaled at the end of the course.

Examinations: There will be two in-class 50-minute midterms, scheduled on Wednesdays, February 5 and March 12, and a 2.5 hour final exam in April. The date of the final examination will be announced by the Registar later in the term. Attendance at the final examination is required, so be careful about making other committments (such as travel) before this date is confirmed. All examinations will be strictly closed-book: no formula sheets, calculators, or other aids will be allowed.

Homeworks: There will be 5 homework assigmnents, due tentatively on Wednesdays, January 15, January 29, February 26, March 19, and Monday, March 31. Each homework will be announced and posted here at least a week in advance. The homeworks are to be handed in at the **beginning** of class. If you cannot come to class, you may drop off your homework at your instructor's office prior to the start of class. Late assignments will not be accepted. Solutions will be posted on the course webpage immediately after the

lecture. To allow for minor illnesses and other emergencies, the lowest homework score will be dropped.

Academic concession: Missing a midterm, or handing in a homework after the deadline, will result in a mark of 0. Exceptions may be granted in two cases: prior consent of the instructor, or a **documented** medical reason. Your course mark will then be based on your remaining coursework.

Additional course related resources:

- TBA

General links:

- Please read the UBC policy on Student Conduct and Discipline.
- Mathematics Learning Centre: The Math Department runs a drop-in tutorial centre for undergraduate Math courses, staffed by Graduate Teaching Assistants. This centre is located in Rooms 300, 301, and 302 in the Leonard S. Klinck (LSK) Building, and is open Monday through Friday, 9:00am to 7:00pm. Check the website above for any changes to hours and announcements. All tutors provide assistance with first- and second-year calculus and linear algebra and will attempt to help with any undergraduate Math course. In addition to regular assistance, the MLC offers Quick Help for students who are looking for fast support for minor snags. There is no charge for the services MLC provides.
- Past final exam database
- UBC Math Club, located in Math Annex 1119, sells math exam packages (old exams together with solution sets) for a nominal price before each final exam session.

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