Mathematics 226 (Honours Advanced Calculus I), Fall 2018

Section 101: MWF 11:00-11:50, LSK 460

Instructor: Prof. I. Laba

- Math Bldg 200, (604) 822 4457, ilaba@math.ubc.ca
- Office hours (tentative): Mon 12-1, Wed 10-11, Thur 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: Either (a) a score of 68% or higher in MATH 121 or (b) a score of 80% or higher in one of MATH 101, MATH 103, MATH 105, SC IE 001.

Corequisites: One of MATH 152, MATH 221, MATH 223.

Textbook: Robert A. Adams and Christopher Essex, Calculus: Several Variables (or Calculus: A Complete Course), 9th ed. Pearson, ISBN 9780134579788. (Older editions can also be used.)

Course topics:

- **Vectors in 3-space (Chapter 10)**: vectors, dot and cross product, planes and lines, quadric surfaces, cylindrical and spherical coordinates.
- **Functions of several variables (Chapter 12):** graphs, limits, continuity, derivatives and differentiability, gradients and directional derivatives, implicit functio ns.
- **Applications of partial derivatives (Chapter 13):** extreme values of functions, minimization and maximization problems.
- **Multiple integration (Chapter 14):** double and triple integrals, changing variables, applications.

We will be covering most, but not all, of the material from Chapters 10, 12, 13 and 14 of the textbook. Detailed updates on class topics will be posted regularly.

Your course mark will be based on WebWork (10%), written homework assignments (15%), midterm exam (25%), and the final exam (50%). The grades may be **slightly** scaled at the end of the course.

- **Examinations:** There will be one in-class 50-minute midterm, scheduled on Wednesday, October 17. and a 2.5 hour final exam in December, The date of the final examination will be announced by the Registar later in the term. All examinations will be strictly closed-book: no formula sheets, calculators, electronic devices, or other aids will be allowed. **Attendance at the final examination is required, so be careful about making other committments (such as travel) before this date is confirmed. Please take this seriously. In the past, the final exam in this course has been scheduled as late as Dec. 21.)**

- **WebWork:** WebWork problem sets will be assigned weekly. In order for your grades to be recorded properly, you have to access problem sets through Canvas. The first problem set (not graded) will be an introduction to WebWork, for those who have not used it previously. To allow for minor illnesses, technical difficulties with WebWork, etc.), the WebWork part of your grade will be 110% of your total WebWork score[*], so that you can miss almost 10% of WebWork and still get full credit. ([*]If this is more than 10 points, your WebWork score will be 10.)

- **Written homework assignments:** tentatively, there will be 4 assignments, due on Fridays, September 21, October 5, November 2, and November 16. These problem sets will have only 3-4 questions, but that will

include proofs, and you will be graded both on the correctness of your mathematics and on the quality of your mathematical writing. For full credit, you will need to present complete and well written explanations; the correct answer alone will **not** be sufficient. Mathematical writing, and especially proof writing, will be addressed explicitly in class. Each assignment will be posted 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 in MATH 200 before it is due. Late assignments will not be accepted. To allow for minor illnesses and other emergencies, the lowest homework score will be dropped.

Academic concession: Missing the 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 links and resources:

- Please read the UBC policy on Student Conduct and Discipline.
- Mathematics Learning Centre: The Math Learning Centre (or MLC for short) is a space for undergraduate students to study math together, with support from tutors, who are graduate and undergraduate students in the math department. Please note that while students are encouraged to seek help with homework, the MLC is not a place to check answers or receive solutions, rather, our aim is to aid students in becoming better learners and to develop critical thinking in a mathematical setting. The MLC is located in Rooms 301 and 302 in the Leonard S. Klinck (LSK) Building, and is open Monday through Friday, 11:00am to 6:00pm. Check the website above for any changes to hours and announcements.
- 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.

[Mathematics Department] [University of British Columbia]