

MATH 200: MULTIVARIABLE CALCULUS
2019S MAY-JUNE TERM 1

- Instructor: Samer Dweik.
- Instructor's office: ESB 4112.
- e-mail: dweik@math.ubc.ca.
- TA: Nina Morishige.
- TA e-mail: nina@math.ubc.ca.
- Where and when: Tuesday, Thursday, Friday 10:00-12:00, Wednesday 10:00-11:00 in LSK200.
- Office Hours: Monday, Wednesday, Friday 13:00-14:00 in LSK300B.

Exams and Marking:

Course mark will be based on the Webwork (10%), four in-class quizzes (15%), one midterm exam (25%), and the final exam (50%). The Final exam will be in June 24-28 (a precise date will come later). **No** calculators, electronic communication devices, books, notes or aids of any kind will be allowed for exams. Students are required to bring ID to all exams.

Policies:

Missing a test will result in a score of 0, except with prior consent of the instructor or with a doctor's note. In these latter cases, the mark will be re-distributed between the other tests and the final exam. Each Webwork assignment generally closes at 06:00pm on Friday (please look at the dates carefully in case there are some deviations). No extensions are possible. If for any reason you have to miss the final exam, it is the university-wide policy that you need to apply for "standing deferred" status through your faculty. Missed finals are not handled by the instructors or the Mathematics Department.

Homework:

On Canvas, you will have the links to webwork via MATH 200 921 Calculus III page. **For all technical problems with webwork, please e-mail TA.**

(Approximate) week-by-week course outline:

Please note that this is only an approximate outline; it may be updated as the course progresses.

- May 6-10: Three-dimensional coordinate systems, vectors, basic operations with vectors, length of a vector, unit vector in a specified direction, dot product, using dot product to find an angle between lines, cross product, using cross product to find a vector orthogonal to two given ones, cross product and area.
- May 13-17: Equations of lines and planes, equations for a line of intersection of two planes, finding distance from a point to a plane, cylinders and quadric surfaces, functions of several variables, domain and range, level curves and level surfaces.
- May 20-24: Limits and continuity for functions of two variables, partial derivatives, directional derivatives, differentials, higher-order partial derivatives, tangent planes and linear

approximations, chain rule and implicit differentiation.

- May 27-31: Critical points, the second derivative test, absolute maximum and minimum values, Lagrange multipliers.
- June 10-14: Double integration (definition, area, integral of a function of two variables over a rectangle), Fubini theorem, double integrals over general regions, polar coordinates, center of mass.
- June 17-20: Triple integrals (definition, volume), triple integrals in cylindrical coordinates, triple integrals in spherical coordinates.

Webworks:

- May 6-10: Homework 1.
- May 13-17: Homeworks 2 & 3.
- May 20-24: Homeworks 4 & 5.
- May 27-31: Homeworks 6 & 7.
- June 10-14: Homeworks 8 & 9.
- June 17-21: Homeworks 10 & 11.

Quizzes:

- May 14: Quiz 1.
- May 21: Quiz 2.
- June 12: Quiz 3.
- June 19: Quiz 4.

Exams:

- May 28: Midterm exam.
- June 24-28: Final exam.