

MATH 200: Multivariable calculus, course outline.

Textbook

Apex Calculus (please see the link on the common website, http://www.math.ubc.ca/~gor/Math200_2018/math200common_2018a.html).

Course syllabus

The course will cover approximately Chapters 10, 12, and 13 of the textbook, with some supplementary sections from other texts. In particular, the main topics will be:

Part I: Vectors and geometry of space

1. Geometry of 3-dimensional Euclidean space; vectors; cross product and dot product.
2. Equations of lines and planes in space.
3. Cylinders and quadric surfaces.

Part II: Functions of several variables – differentiation

4. Functions of two and three variables: domain, range, continuity, level curves and level surfaces
5. Partial derivatives
6. the differential and linear approximation
7. Directional derivatives
8. the gradient vector; tangent planes
9. critical points
10. optimization problems; Lagrange multipliers.

Part III: Integration of functions of several variables

11. The notion of area and integral of a function of two variables
12. Iterated integrals
13. integration in polar coordinates
14. Volume and triple integrals
15. integration in space using cylindrical and spherical coordinates

Exams and Marking

Course mark will be based on the Webwork (10%), five in-class quizzes (15%), midterm exam (25%) and the final exam (50%). The final exam will cover the entire course. The midterms and the final exam will be common between all sections, and marked jointly.

Policies

Missing a midterm results in a score of 0, except with prior consent of the instructor or with a doctor's note. In these latter cases, you will be allowed to take a make-up midterm; dates and times of make-up midterms will be announced later. If you anticipate having a valid conflict with the announced midterm times, please send an e-mail to **math200dictator@gmail.com**. If you fail to notify the Instructor-in-charge of a conflict via this e-mail before February 12, you may not be allowed to take the make-up exam, and your score will be 0.

Each Webwork assignment generally closes at 11:59pm on Wednesday night (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

All homework assignments should be submitted online through **Webwork**. Please use Piazza as the main resource for help with webwork-related (non-conceptual) questions. It is a forum, which will be monitored by our TAs, where you can post questions and answers about webwork. Please use the "e-mail instructor" button in webwork *only* if the question is not answered on Piazza, and you posted it and did not receive an answer.