

MATH 200:921 MULTIVARIABLE CALCULUS

COURSE OUTLINE

Textbook: Apex Calculus (please see the link on the website, http://www.math.ubc.ca/~rpirisi/Math200_921.html).

Course Syllabus: The course will cover approximately Chapters 10, 12, and 13 of the textbook, with some supplementary sections from other texts. 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 (15%), five in-class quizzes (35%), and the final exam (50%). The final exam will cover the entire course.

Policies: The worst of your quizzes will be dropped from the average. If you miss a quiz that will be the one that is dropped. In case of a justified absence (with a doctor's note or prior consent from the instructor) at most one more quiz can be dropped from the average. Dates and times of quizzes will be announced later.

Homework: There will be two weekly assignments, unless otherwise stated. Homework assignments should be submitted online through Webwork. (Scroll down to the course named 2018S1_MATH200_921); to enroll in the WebWork course you must access it through Canvas.

Please use Piazza as the main resource for help with webwork-related and other questions. It is a forum, which will be monitored by our TA, 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.