THE CHINESE UNIVERSITY OF HONG KONG Department of Mathematics MATH2010E (Summer Term, 2017) Advanced Calculus I CLASSROOM rse Web Page : http://www.math.cubk.edu.bk/course/math20

Course Web Page : http://www.math.cuhk.edu.hk/course/math2010e/

Introduction

Advanced Calculus I is all about differentiation of functions of multiple variables in contrast to calculus in which only functions of a single variable is studied. This course consists of two parts: Firstly, the background which includes Euclidean space; straight lines, plane and quadric surfaces; parametric curves. Secondly, differentiation theory which contains partial differentiation, differentiation; curves, surfaces, and hypersurfaces; and unconstrained/constrained extremal problems including the Lagrange multipliers.

Knowledge of calculus and linear algebra comparable to MATH1010 Calculus and 1030 Linear Algebra I respectively is assumed.

A complete set of lecture notes will be uploaded in the course webpage chapter by chapter. The pace in summer courses is usually faster than that in the regular semester. Some topics in the lecture notes marked with asterisk could be omitted at a first reading. Doing exercises is an essential component in this course. To learn the subject well, you should go over as many problems as possible.

Instructor

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Teaching Assistant

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References

- (1) [Thomas] MD Weir and J Hass, *Thomas' Calculus*, 12th edition, Pearson.
- (2) [Au] T Au, Differential Multivariable Calculus, McGraw Hill.

(3) [Fitz] P Fitzpatrick, Advanced Calculus: A Course in Mathematical Analysis, 2nd edition, PWS.

Meeting Schedule

- May 17, 19, 22, 24, 29, 31,
- June 5, 7, 12 14, 19, 21, 23, 26.

Grade

- 10% Assignments (in- and off-class)
- 50% Two tests
- 40% Final Examination (TBA)

Assignment Policy

Problem sets will be assigned and deadline for submission will be posted. You must attend the tutorial classes where you work out and hand in additional exercises given by the tutors in class.

Honesty in Academic Work

The Chinese University of Hong Kong places very high importance on honesty in academic work submitted by students, and adopts a policy of zero tolerance on cheating and plagiarism. Any related offence will lead to disciplinary action including termination of studies at the University.

Although cases of cheating or plagiarism are rare at the University, everyone should make himself/herself familiar with the content of the following website:

http://www.cuhk.edu.hk/policy/academichonesty/

and thereby help avoid any practice that would not be acceptable.