

THE CHINESE UNIVERSITY OF HONG KONG
Department of Mathematics

MATH2010B Advanced Calculus I, First term 2020-21

Grades

- 10% Homework+Webwork
- 40% (take home) Midterm Exam, Date: October 29-30
- 50% Final Exam.

Textbooks

- *Thomas' Calculus* by Thomas, Weir & Hass
- *Differential Multivariable Calculus* by Thomas Au

Schedule

Wk	Monday	Wednesday	Contents
1	Sep 7	Sep 9	Euclidean space, vector, matrix
2	Sep 14	Sep 16	line, plane and their intersections
3	Sep 21	Sep 23	parameterization, curve, polar coordinate
4	Sep 28	Sep 30	graphs and contour plot, point set topology
5	Oct 5	Oct 7	limit and continuity
6	Oct 12	Oct 14	partial derivative, linear approximation
7	Oct 19	Oct 21	differentiability
8	Oct 26 (Holiday)	Oct 28	differential, chain rule, implicit differentiation
9	Nov 2	Nov 4	gradient vector, directional derivatives
10	Nov 9	Nov 11	critical points, optimization
11	Nov 16	Nov 18	Taylor formula, 2nd derivative test
12	Nov 23	Nov 25	Lagrange multiplier method
13	Nov 30	Dec 2	implicit function theorem, review