

THE CHINESE UNIVERSITY OF HONG KONG
Department of Mathematics

MATH2040B Linear Algebra II, Second term 2022-23

Grades

- 10% Homework. (Besides, selected practice problems will be provided but they will NOT be graded.)
- 20% Test 1. February 22
- 20% Test 2. March 29
- 50% Final Exam. The date is TBA by the university

Schedule

Wk	Monday	Wednesday	Contents
1	Jan 9	Jan 11	Vector space/subspaces, span and linear independence
2	Jan 16	Jan 18	Basis and dimension
3	Jan 23 (Holiday)	Jan 25 (Holiday)	
4	Jan 30	Feb 1	Linear maps, null spaces, range, rank-nullity theorem
5	Feb 6	Feb 8	Matrix representation, invertibility and isomorphism
6	Feb 13	Feb 15	Change of basis formula
7	Feb 20	Feb 22 (Test 1)	Eigenvalues, eigenvectors, characteristic polynomials
8	Feb 27	Mar 1	Diagonalizability
9	Mar 6 (no class)	Mar 10 (no class)	
10	Mar 13	Mar 15	Invariant subspaces, Cayley-Hamilton theorem
11	Mar 20	Mar 22	Inner products and norms
12	Mar 27	Mar 29 (Test 2)	Orthonormal basis, orthogonal complement
13	Apr 3	Apr 5 (Holiday)	Adjoint of an operator
14	Apr 10 (Holiday)	Apr 12	Normal, self-adjoint, unitary and orthogonal operators
15	Apr 17	Apr 19	Spectral theorem