

MATH 310: SYLLABUS

Instructor	Bradley Dirks
Meetings	Tu/Th 2:30-3:50pm in Humanities 1003
Office Hours	Tu/Th 1:00-2:00pm in Math Tower 4-101B , Monday 3:00pm-4:00pm in MLC
TAs	Shuhao Li and Joao Pering
Description	Finite dimensional vector spaces, linear maps, dual spaces, (generalized) eigenvalues/eigenvectors, inner products.
Textbook	<i>Linear Algebra Done Right (4th Edition)</i> by Sheldon Axler
Homework (HW)	See Schedule below. No late HW accepted, but under documented extenuating circumstances grade may be dropped.
Grading	Homework: 20%, Midterm I: 20%, Midterm II: 20%, Final: 40%

Date	Section of Book	Homework (due in following Recitation)
1/23	1A-1B: $\mathbf{R}^n, \mathbf{C}^n$, definition of vector space	1A: 9, 10, 15 1B: 3, 7 1C: 3, 4, 22
1/25	1C: Subspaces	
1/30	2A: Span, Linear independence	2A: 3, 9, 19 2B: 7, 9, 10 2C: 3, 4, 20
2/1	2B-2C: Bases, dimension	
2/6	3A-3B: Vector space of linear maps, null space, range	3A: 3, 7, 12, 15 3B: 3, 10, 22, 25
2/8	Midterm 1	
2/13	3C: Matrices	3C: 3, 5, 17 3D: 2, 8
2/15	3D: Invertibility	
2/20	3E: Products/Quotients	3E: 4, 13, 17 3F: 5, 7
2/22	3F: Duality	
2/27	Zeros and Division Algorithm for Polynomials	Ch. 4: 6, 7, 13, 14
2/29	Factoring Polynomials	
3/5	5A: Invariant Subspaces	5A: 8, 13, 20 5B: 10, 15
3/7	5B: Minimal Polynomial	
—	Spring Break	—
3/19	5C: Upper-Triangular Matrices	5C: 7, 12, 14 5D: 3, 4
3/21	5D: Diagonalizable Operators	
3/26	5E: Commuting Operators	No HW
3/28	Review	
4/2	Midterm 2 (Up to Section 5E)	5E: 3,9 6A: 6, 9, 14
4/4	6A: Inner Products and Norms	
4/9	6B: Orthonormal Bases	6B: 7,9 6C: 5,12
4/11	6C: Orthogonal Complements and Minimization	
4/16	7A: Self-Adjoint and Normal Operators	7A: 7, 27 7B: 11, 20
4/18	7B: Spectral Theorem	
4/23	8A: Generalized Eigenvectors and Nilpotent Operators	8A: 6, 17, 22 8B: 8, 18
4/25	8B: Generalized Eigenspace Decomposition	
4/30	8C: Consequences of Section 8B	No HW
5/2	Review	

1. POLICIES

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Some students with hearing and communication impairments may need their instructor to wear a clear mask for lip and facial expression purposes. If the student has registered with the Student Accessibility Support Center (SASC) and has requested an accommodation for clear masks, SASC will reach out to the students instructors and provide a clear mask for them to wear while teaching and/or interacting with the student. If you have questions, please email sasc@stonybrook.edu or call (631) 632-6748.

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