

# Diary

Updated: March 18, 2024.

Meeting	Day	Topic	Reference	Assignment
1	15/1	Vector spaces: definition and examples	§1B	<i>WS 1</i>
2	18/1	Subspaces, sums and direct sums	§1C	<i>WS 1</i>
3	18/1	Span, independence, bases	§2A, §2B	<i>WS 1</i>
4	22/1	Bases and dimension	§2B, §2C	<i>WS 2</i>
5	25/1	Linear maps, null spaces and range	§3A, §3B	<i>WS 2</i>
6	25/1	Fundamental Theorem of linear algebra	§3A, §3B	<i>WS 2</i>
7	29/1	Matrices associated to a linear map, Invertible morphisms	§3C, §3D	<i>WS 3</i>
8	1/2	Properties of invertible morphisms	§3D	<i>WS 3</i>
9	1/2	Products of vector spaces	§3E	<i>WS 3</i>
10	5/2	Quotient spaces	§3E	<b>HW 1</b> , <i>WS 4</i>
11	8/2	Dual spaces	§3F	<i>WS 4</i>
12	8/2	Dual morphisms and annihilator subspace	§3F	<i>WS 4</i>
13	19/2	Invariant subspaces	§5A	<i>WS 5</i>
14	22/2	Minimal Polynomial	§5B	<i>WS 5</i>
15	22/2	Minimal Polynomial	§5B	<i>WS 5</i>
16	26/2	Upper-Triangular Matrices	§5C	<b>HW 2</b>
–	29/2	<b>Midterm 1</b>	M 1-15	Midterm 1
17	11/3	Diagonalizable Operators	§5D	<i>WS 6</i>
18	14/3	Discussion of Midterm 1		
19	14/3	Inner Product Spaces, Norm	§6A, 6B	<i>WS 6</i>
		Orthonormal basis, Gram–Schmidt procedure		
20	18/3	Riesz representability, Orthogonal Complement	§7A	<i>WS 7</i>
		Adjoint Operator, Self-Adjoint and Normal Operators		
21	21/3	Spectral Theorem	§7B	<i>WS 7</i>
22	21/3	Positive Operators and Singular Value Decomposition	§7C, 7E	<i>WS 7</i>
23	25/3	Generalized Eigenvectors	§8A	<b>HW 3</b> , <i>WS 8</i>
24	28/3	Generalized Eigenspace, char. polynomial	§8B	<i>WS 8</i>
	28/3	multiplicity of eigenvalues	§8B	<i>WS 8</i>
25	8/4	Jordan form	§8C	<b>HW 4</b> , <i>WS 8</i>
	11/4	<b>Midterm 2</b>	M 16,19-28	Midterm 2
31	15/4	Bilinear and Quadratic Forms	§9A	<i>WS 10</i>
32	18/4	Tensor Products	§9D	<i>WS 10</i>
33	18/4	Tensor Products	§9D	<i>WS 10</i>
34	22/4	Alternating Multilinear Forms	§9B	<i>WS 11</i>
35	25/4	Determinants	§9C	<i>WS 11</i>
36	25/4	Determinants	§9C	<i>WS 11</i>

- The reference concerns sections of the textbook.
- The first exam will cover the material from Meetings 1-15.
- The second exam will cover the material from Meetings 16, 17-25.
- WS means Worksheet. You don't have to turn them in, but they are the exercises that I expect you to know how to solve.

- HW means Homework. You need to turn these in and they will be graded.
- The final exam is commulative.