

	Day		Section	Topic	
1	W	27-Aug	1.1	Metric Space	1
2	F	29-Aug	1.2	Further Examples of Metric Spaces	2
	M	1-Sep	Labor Day		3
3	W	3-Sep	1.3	Open Set, Closed Set, Neighborhood	4
4	F	5-Sep	Review		5
5	M	8-Sep	Q 1.1-1.2	HW due sections 1.1-1.2	6
6	W	10-Sep	1.4	Convergence, Cauchy Sequence, Completeness	7
7	F	12-Sep	1.5	Examples. Completeness Proofs	8
8	M	15-Sep	1.6	Completion of Metric Spaces	9
9	W	17-Sep	5.1	Banach Fixed Point Theorem	10
10	F	19-Sep	Q 1.3-1.6	HW due sections 1.3-1.6	11
11	M	22-Sep	5.2	Systems of Linear Equations	12
	W	24-Sep	REACH Day		13
12	F	26-Sep	5.3	Differential Equations	14
13	M	29-Sep	2.1, 2.2a	Vector Space. Normed Space	15
14	W	1-Oct	2.2	Normed Space. Banach Space	16
15	F	3-Oct	Q 5.1-5.3	HW due 5.1-5.3	17
16	M	6-Oct	2.3	Further Properties of Normed Spaces	18
17	W	8-Oct	2.4	Finite Dimensional Normed Spaces and Subspaces	19
18	F	10-Oct	2.5	Compactness and Finite Dimension	20
19	M	13-Oct	2.6	Linear Operators	21
20	W	15-Oct	Q 2.1-2.5	HW due 2.1-2.5	22
21	F	17-Oct	2.7	Bounded and Continuous Linear Operators	23
	M	20-Oct	Fall Break		24
22	W	22-Oct	2.8	Linear Functionals	25
23	F	24-Oct	2.9	Linear Operators and Functionals on Finite Dim Spaces	26
24	M	27-Oct	2.10	Normed Spaces of Operators. Dual Space	27
25	W	29-Oct	Review		28
26	F	31-Oct	Q 2.6-2.10	HW due 2.6-2.10	29
27	M	3-Nov	3.1	Inner Product Space. Hilbert Space	30
28	W	5-Nov	3.2	Further Properties of Inner Product Spaces	31
29	F	7-Nov	3.3	Orthogonal Complements and Direct Sums	32
30	M	10-Nov	3.4	Orthonormal Sets and Sequences	33
31	W	12-Nov	3.5	Series Related to Orthonormal Sequences and Sets	34
32	F	14-Nov	3.6	Total Orthonormal Sets and Sequences	35
33	M	17-Nov	Q 3.1-3.5	HW due 3.1-3.5	36
34	W	19-Nov	3.8	Functionals on Hilbert Spaces	37
35	F	21-Nov	4.1	Zorn's Lemma	38
	M	24-Nov	Thanksgiving B.		39
	W	26-Nov	Thanksgiving B.		40
	F	28-Nov	Thanksgiving B.		41
36	M	1-Dec	4.2	Hahn-Banach Theorem	42
37	W	3-Dec	4.3	HBT for Complex Vector Spaces and Normed Spaces	
38	F	5-Dec	4.4	Applications to Bounded Linear Functionals on $C[a,b]$	
39	M	8-Dec	4.7	Category Theorem. Uniform Boundedness Theorem	
40	W	10-Dec	4.8	Strong and Weak Convergence	
41	F	12-Dec	4.12	Open Mapping Theorem	
			Final Exam	HW due (all remaining HW)	

- 1.1 Metric Space
- 1.2 Further Examples of Metric Spaces
- 1.3 Open Set, Closed Set, Neighborhood

Review

Q 1.1-1.2

- 1.4 Convergence, Cauchy Sequence, Completeness
- 1.5 Examples. Completeness Proofs
- 1.6 Completion of Metric Spaces

Review

Q 1.3-1.6

- 5.1 Banach Fixed Point Theorem
- 5.2 Systems of Linear Equations
- 5.3 Differential Equations

2.1, 2.2a Vector Space. Normed Space

Q 5.1-5.3

- 2.2 Normed Space. Banach Space
- 2.3 Further Properties of Normed Spaces
- 2.4 Finite Dimensional Normed Spaces and Subspaces
- 2.5 Compactness and Finite Dimension
- 2.6 Linear Operators

Q 2.1-2.5

- 2.7 Bounded and Continuous Linear Operators
- 2.8 Linear Functionals
- 2.9 Linear Operators and Functionals on Finite Dim Spaces
- 2.10 Normed Spaces of Operators. Dual Space

Review

Q 2.6-2.10

- 3.1 Inner Product Space. Hilbert Space
- 3.2 Further Properties of Inner Product Spaces
- 3.3 Orthogonal Complements and Direct Sums
- 3.4 Orthonormal Sets and Sequences
- 3.5 Series Related to Orthonormal Sequences and Sets
- 3.6 Total Orthonormal Sets and Sequences

Q 3.1-3.5

- 3.8 Functionals on Hilbert Spaces
- 4.1 Zorn's Lemma
- 4.2 Hahn-Banach Theorem
- 4.3 HBT for Complex Vector Spaces and Normed Spaces
- 4.4 Applications to Bounded Linear Functionals on $C[a,b]$
- 4.7 Category Theorem. Uniform Boundedness Theorem
- 4.8 Strong and Weak Convergence
- 4.12 Open Mapping Theorem