

Schedule

Build Content

Assessments

Tools



An approximate schedule

	Week	Date	Topics	References (* = optional)
General topology	1	Sep 9	Topology: intuitions, examples, and connections Class overview Basic notions of topology: topological space, metric space	[Y] Sec. 1.1 [BBT] Sec. 0.1
	2	Sep 13	Basic notions of topology, cont'd Basic notions of category theory and set theory	[M] Secs. 20*, 21* [BBT] Secs. 0.2.1, 0.2.2, 0.2.3*, 0.3.1, 0.3.6*
	2	Sep 16	Continuous map, homeomorphism	[Y] Sec. 1.2
	3	Sep 23	Product topology, basis, basic open neighborhoods	[Y] Sec. 1.3 [BBT] Secs. 1.4, 0.3.3*, 0.3.4*
	4	Sep 27	The separation axioms	[Y] Sec. 2.1 [M] Sec. 31
	4	Sep 30	The countability axioms	[Y] Sec. 2.1 [M] Secs. 30, 32
	4.5	Oct 9	The Urysohn lemma and related theorems	[Y] Sec. 2.2 [M] Secs. 33, 34, 35
	5	Oct 14	The Urysohn lemma and related theorems, cont'd Compactness	[Y] Sec. 2.3 [M] Sec. 27*
	6	Oct 18	Compactness, cont'd	[Y] Sec. 2.3 [M] Sec. 37*
	6	Oct 21	Other sorts of compactness, compactification Connectedness	[Y] Sec. 2.3 [BBT] Sec. 5.5 [Y] Sec. 2.4 [M] Sec. 24*
Geometric topology	7	Oct 28	Connectedness, cont'd Path connectedness	[Y] Sec. 2.5
	8	Nov 1	Path connectedness, cont'd Topological properties Examples of surfaces	[Y] Secs. 2.6, 3.1
	8	Nov 4	Quotient topology	[Y] Sec. 3.2 [BBT] Sec. 1.3
	9	Nov 11	Midterm exam	
	10	Nov 15	Topological manifold, classification of surfaces	[Y] Secs. 3.3, 3.4*
Algebraic topology	11	Nov 25	Embedding of manifolds, partition of unity Simplicial complex	[M] Sec. 36 [B] Secs. 3.2, 3.4, 3.5, 3.6*
	12	Nov 29	Euler characteristic, orientation Function space, the compact-open topology	[M] Sec. 46 [BBT] Secs. 5.1, 5.6.1, 6.1

	12	Dec 2	Homotopy of maps	[Y] Sec. 4.1
	13	Dec 9	Fundamental group: definitions, the fundamental groupoid, a glimpse of higher categories	[Y] Sec. 4.2 [BBT] Sec. 6.2
	14	Dec 13	Fundamental group: examples, S^n	[Y] Sec. 4.3
	14	Dec 16	Fundamental group: homotopy invariance	[Y] Sec. 4.4
	15	Dec 23	Fundamental group: computations and applications, the van Kampen theorem	[Y] Sec. 4.5 [BBT] Sec. 6.7 [M] Secs. 67*, 68*, 69*, categorically
	16	Dec 27	Fundamental group: computations and applications, surfaces	[Y] Sec. 4.5 [M] Secs. 55, 56*
	16	Dec 30	Covering map	[Y] Sec. 5.1
		TBA	Final exam	