

	Week	Date	Topics	References (* = optional)
General topology	1	Sep 10	Topology: intuitions, examples, and connections Class overview Basic notions of topology: topological space, basis, basic open neighborhoods, metric space	[Y] Sec. 1.1 [BBT] Sec. 0.1
	2	Sep 14	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 17	Continuous maps and their properties, homeomorphism	[Y] Sec. 1.2
	3	Sep 24	The product topology	[Y] Sec. 1.3 [BBT] Secs. 1.4, 0.3.3*, 0.3.4*
	4	Sep 28	The separation axioms	[Y] Sec. 2.1 [M] Sec. 31
	4	Oct 8	The countability axioms	[Y] Sec. 2.1 [M] Secs. 30, 32
	5	Oct 15	The Urysohn lemma and related theorems	[Y] Sec. 2.2 [M] Secs. 33, 34, 35
	6	Oct 19	The Urysohn lemma and related theorems, cont'd Compactness and sequential compactness	[Y] Sec. 2.3 [M] Sec. 27*
	6	Oct 22	Compactness and sequential compactness, cont'd	[Y] Sec. 2.3 [M] Sec. 37*
	7	Oct 29	Other sorts of compactness, compactification Connectedness	[Y] Sec. 2.3 [BBT] Sec. 5.5 [Y] Sec. 2.4 [M] Sec. 24*
	8	Nov 2	Path connectedness Topological properties	[Y] Secs. 2.5, 2.6
Geometric topology	8	Nov 5	Examples of surfaces, the quotient topology Topological manifold, partition of unity, embedding of manifolds	[Y] Secs. 3.1, 3.2 [BBT] Sec. 1.3 [Y] Sec. 3.3 [M] Sec. 36
	9	Nov 12	Classification of surfaces Simplicial complex, Euler characteristic, orientation	[Y] Sec. 3.4* [B] Secs. 3.2, 3.4, 3.5, 3.6*
	10	Nov 16	Midterm exam	
Algebraic topology	11	Nov 26	Function space, the compact-open topology Homotopy of maps	[M] Sec. 46 [BBT] Secs. 5.1, 5.6.1, 6.1 [Y] Sec. 4.1
	12	Nov 30	The fundamental group: definitions, the fundamental groupoid, a glimpse of higher categories	[Y] Sec. 4.2 [BBT] Sec. 6.2
	12	Dec 3	The fundamental group: examples, S^n	[Y] Sec. 4.3
	13	Dec 10	The fundamental group: homotopy invariance	[Y] Sec. 4.4

	14	Dec 14	The fundamental group: computations and applications, the van Kampen theorem	[Y] Sec. 4.5 [BBT] Sec. 6.7 [M] Secs. 67*, 68*, 69*, categorically
	14	Dec 17	The fundamental group: computations and applications, surfaces	[Y] Sec. 4.5 [M] Secs. 55, 56*
	15	Dec 24	Covering map	[Y] Sec. 5.1
	16	Dec 28	Lifting of paths	[Y] Sec. 5.2 [M] Sec. 54 [BBT] Sec. 6.6*
	16	Dec 31	Covering transformation, regular covering space	[Y] Sec. 5.3
		TBA	Final exam	