

Chapter 1. General Topology

Note. In these class notes, we “browse” Chapter 1 and mostly rely on the prerequisite class, Introduction to Topology (MATH 4357/5357) and the [online notes for Introduction to Topology](#).

Note. The sections in Chapter 1 of this book correspond roughly to the sections of Munkres’ *Topology*, 2nd Edition (Pearson, 2000) as follows:

Bredon Section	Munkres Section
I.1. Metric Spaces	2.20. The Metric Topology
I.2. Topological Spaces	2.12. Topological Spaces
I.3. Subspaces	2.16. The Subspace Topology
I.4. Connectivity and Components	3.23. Connected Spaces 3.25. Components and Local Connectedness
I.5. Separation Axioms	4.31. The Separation Axioms
I.6. Nets (Moore-Smith Convergence)	3.29.S. Supplemental Exercises: Nets
I.7. Compactness	3.26. Compact Spaces
I.8. Products	2.15. The Product Topology on $X \times Y$
I.9. Metric Spaces Again	2.21. The Metric Topology (continued)
I.10. Existence of Real Valued Functions	4.35. The Tietze Extension Theorem
I.11. Locally Compact Spaces	3.29. Local Compactness
I.12. Paracompact Spaces	6.41. Paracompactness
I.13. Quotient Spaces	2.22. The Quotient Topology
I.14. Homotopy	9.51. Homotopy of Paths
I.15. Topological Groups	2.22S. Supplement: Topological Groups
I.16. Convex Bodies	
I.17. The Baire Category Theorem	8.48. Baire Spaces

Note. In these notes, we cover some of the sections of Chapter 1 in order to quickly review some basic topics. We cover the following section of Chapter 1:

Chapter 1 Section
I.1. Metric Spaces
I.2. Topological Spaces
I.3. Subspaces
I.4. Connectivity and Components
I.5. Separation Axioms
I.6. Nets (Moore-Smith Convergence)
I.7. Compactness
I.8. Products
I.9. Metric Spaces Again
I.10. Existence of Real Valued Functions
I.11. Locally Compact Spaces
I.12. Paracompact Spaces
I.13. Quotient Spaces
I.14. Homotopy
I.15. Topological Groups
I.16. Convex Bodies
I.17. The Baire Category Theorem

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