LUNDS UNIVERSITET

Matematikcentrum
Matematik NF

Topology, Spring 2026 **MATM36**

Rough Schedule for material in lectures

M refers to Munkres, GG to Gamelin/Greene.

1. Lecture 1 Cardinality of sets (M, Ch. 1, Sections 6 and 7)

2. Lecture 2 Metric and Topological Spaces (M, Ch. 2.12, 2.13, 2.15, 2.16, 2.17, 2.20, 2.21 or GG, Ch. 1.1, 2.1, 2.2)

3. Lecture 3 Metric and Topological Spaces (M, Ch. 2.12, 2.13, 2.15, 2.16, 2.17, 2.20, 2.21 or GG, Ch. 1.1, 2.1, 2.2)

4. Lecture 4 Metric and Topological Spaces (M, Ch. 2.12, 2.13, 2.15, 2.16, 2.17, 2.20, 2.21 or GG, Ch. 1.1, 2.1, 2.2)

5. Lecture 5 Continuous Functions (M. Ch. 2.18 or GG, Ch. 1.6, 2.3)

6. Lecture 6 Continuous Functions (M. Ch. 2.18 or GG, Ch. 1.6, 2.3)

7. Lecture 7 Connectedness (M. Ch.3.23, 3.24 or GG, Ch. 2.8, 2.9)

8. Lecture 8 Compactness (M. Ch. 3.26 - 3.29 or GG, Ch. 1.5, 2.6)

9. Lecture 9 Compactness (M. Ch. 3.26 - 3.29 or GG, Ch. 1.5, 2.6)

10. Lecture 10 Completeness (M. Ch. 7.43, Ch.7.45-7.47 or GG, Ch.1.2, 1.8)

11. Lecture 11 Completeness (M. Ch. 7.43, Ch.7.45-7.47 or GG, Ch.1.2, 1.8)

12. Lecture 12 Completeness (M. Ch. 7.43, Ch.7.45-7.47 or GG, Ch.1.2, 1.8)

13. Lecture 13 Infinite Product Spaces (M Ch. 2.19, 2.22 or GG Ch. 2.12, 2.13)

14. Basics on Banach and Hilbert spaces (Ch. 7 in GG)

15. Characterization of compact metric spaces, total boundedness and completeness, Arcela-Ascoli Theorem (M. 3.28, 7.43, 7.45, 7.47)

16. Normal spaces, Urysohn's Lemma and the Tietze Extension Theorem (M, 4.31, 4.32, 4.33, 4.35)