

**Syllabus: Comprehensive Exam**

**Component: MATH 525**

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**Title:** Graph Theory

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**Topics**

- Graphs
  - Subgraphs
  - Connected Graphs
  - Trees
  - Flows in Networks
  - Connectivity
  - Planar Graphs
  - The Four-Colour Problem
  - Stable Sets and Cliques
  - The Probabilistic Method
  - Vertex Colourings
  - Matchings
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**References**

1. **Graph Theory** by J.A. Bondy and U.S.R. Murty, 2008.
2. **Graphs & Digraphs (7th Edition)** by G. Chartrand, H. Jordon, V. Vatter, and P. Zhang. 2024.