

# Proof-Based Math Readings

## Session: Graph Theory\*

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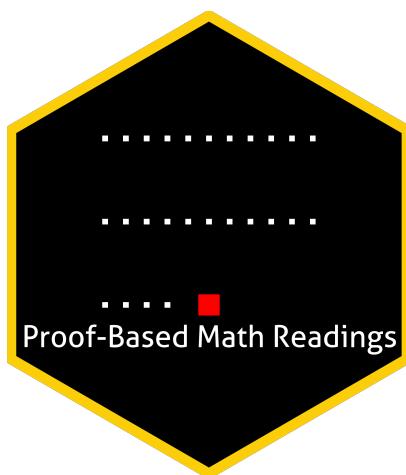
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## Table of contents

<b>0 Motivation</b>	<b>2</b>
<b>1 Prerequisites and Format</b>	<b>2</b>
<b>2 Resources</b>	<b>2</b>
2.1 Main Book and Main Book's Playlist . . . . .	2
2.2 Supplementary . . . . .	2
2.2.1 Graph Theory . . . . .	2
2.2.2 Proof Techniques . . . . .	2
<b>3 Reading Schedule</b>	<b>3</b>
<b>4 Further Readings (Optional)</b>	<b>3</b>



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\*[zekiakyol.com](http://zekiakyol.com)

# 0 Motivation

- *Proof-Based Math Readings* is a free, independent online reading group where we study the mathematics required for economics master's and PhD programs through an intuitive approach. Active since May 2023.
- This session of the reading group is on *Graph Theory*.

# 1 Prerequisites and Format

- Proof Techniques resources below.
- Please use the  [Application Form](#) to join our reading group; you will receive a response within a week.
- This session takes 12 weeks. We do not have face-to-face/online meetings due to the size of the group.
- Members read the main book and discuss the topics/exercises in the Proof-Based Math Readings Discord .

# 2 Resources

## 2.1 Main Book and Main Book's Playlist

**A First Course in Graph Theory - Gary Chartrand, Ping Zhang (2012)** is our main book because it is well-written and well-structured.

Mikhail Lavrov's playlist is our playlist because the narrative is great.

-  A First Course in Graph Theory - Gary Chartrand, Ping Zhang (2012)
-  A First Course in Graph Theory - Gary Chartrand, Ping Zhang (2012, Playlist by Mikhail Lavrov)
-  A First Course in Graph Theory - Gary Chartrand, Ping Zhang (2012, Playlist by Wrath of Math)
-  A First Course in Graph Theory - Gary Chartrand, Ping Zhang (2012, Notes by Evan Chen)

## 2.2 Supplementary

### 2.2.1 Graph Theory

-  Introduction to Graph Theory: A Computer Science Perspective - Reducible (2020)
-  Graph Theory - Don Sheehy (2020)
-  D3 Graph Theory (Interactive)
-  Graph Online (Interactive)

### 2.2.2 Proof Techniques

-  Book of Proof - Richard Hammack (3.4 Edition, 2025)
-  Book of Proof - Richard Hammack (3.4 Edition, 2025, Playlist by Jeremy Teitelbaum)
-  Book of Proof - Richard Hammack (3.4 Edition, 2025, Playlist by Michael Penn)

### 3 Reading Schedule

FCGT is the abbreviation of **A First Course in Graph Theory - Gary Chartrand, Ping Zhang (2012)**.

 FCGT	Week 01 
Appendix 1: Sets and Logic Appendix 2: Equivalence Relations and Functions Appendix 3: Methods of Proof	
 FCGT	Week 02 
Chapter 1: Introduction	
 FCGT	Week 03-04 
Chapter 2: Degrees Chapter 3: Isomorphic Graphs	
 FCGT	Week 05-06 
Chapter 4: Trees Chapter 5: Connectivity	
 FCGT	Week 07-08 
Chapter 6: Traversability Chapter 7: Digraphs	
 FCGT	Week 09-10 
Chapter 8: Matchings and Factorization Chapter 9: Planarity	
 FCGT	Week 11-12 
Chapter 10: Coloring Graphs	

### 4 Further Readings (Optional)

 Graphs and Digraphs - G. Chartrand, H. Jordon, V. Vatter, P. Zhang (7th Edition, 2024)