

Proof-Based Math Readings

Session: Numerical Linear Algebra

2025 Summer

Zeki Akyol*

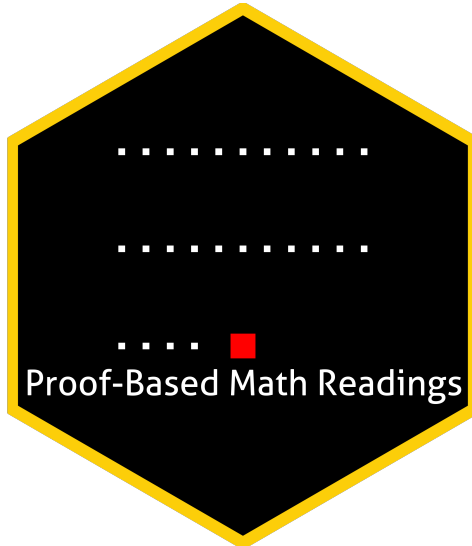
Department of Economics
Istanbul Technical University

[Click here for the most recent versions of the syllabuses](#)

Version: 16 August 2024, 07:34 PM

Table of contents

0 Motivation	2
1 Prerequisites	2
2 Format	2
3 Resources	2
3.1 Main Book	2
3.2 Supplementary	2
3.2.1 Proof	2
4 Reading Schedule	3
5 Further Readings (Optional)	3




*zekiakyol.com


0 Motivation

- *Proof-Based Math Readings* is a free and independent online reading group where we study mathematics required in economics master's/PhD programs using an intuitive approach.
- This session of the reading group is on *Numerical Linear Algebra*.

1 Prerequisites

- CGPA: 3.00/4.00.
- Proof resources below are the prerequisites for this session.
- Please use the  [Application Form](#) to join our reading group.
- Applicants are informed about their application results within a week via email.


2 Format

- This session takes 12 weeks.
- We discuss the topics/exercises that we struggle with at  [Proof-Based Math Readings \[Discord\]](#).
- We do not have face-to-face/online meetings due to the size of the group.
- Members are expected to read the chapters from the book.

3 Resources

3.1 Main Book

Numerical Linear Algebra - Lloyd N. Trefethen, David Bau III (1997 or 2022) is our main book because it is well-structured and well-written.

-  Numerical Linear Algebra - Lloyd N. Trefethen, David Bau III (1997 or 2022)
-  [Numerical Linear Algebra - Lloyd N. Trefethen, David Bau III \(1997 or 2022, Errata\)](#)
-  [Numerical Linear Algebra - Lloyd N. Trefethen, David Bau III \(1997 or 2022, Solutions by Youngdo Lee\)](#)













3.2 Supplementary

3.2.1 Proof

-  [Book of Proof - Richard Hammack \(3.3 Edition, 2022\)](#)
-  [Book of Proof - Richard Hammack \(3.3 Edition, 2022, Playlist by Jeremy Teitelbaum\)](#)
-  [Book of Proof - Richard Hammack \(3.3 Edition, 2022, Playlist by Michael Penn\)](#)

4 Reading Schedule

- **NLA** is the abbreviation of **Numerical Linear Algebra - Lloyd N. Trefethen, David Bau III (1997 or 2022)**.

 NLA	Week 01-02 
Part I: Fundamentals	
 NLA	Week 03-04 
Part II: QR Factorization and Least Squares	
 NLA	Week 05-06 
Part III: Conditioning and Stability	
 NLA	Week 07-08 
Part IV: Systems of Equations	
 NLA	Week 09-10 
Part V: Eigenvalues	
 NLA	Week 11-12 
Part VI: Iterative Methods	

5 Further Readings (Optional)

-  Matrix Computations - Gene H. Golub, Charles F. Van Loan (4th Edition, 2013)
-  [Matrix Computations - Gene H. Golub, Charles F. Van Loan \(4th Edition, 2013, Errata and M-files\)](#)