

Proof-Based Math Readings

Session: Numerical Linear Algebra

2025 Summer

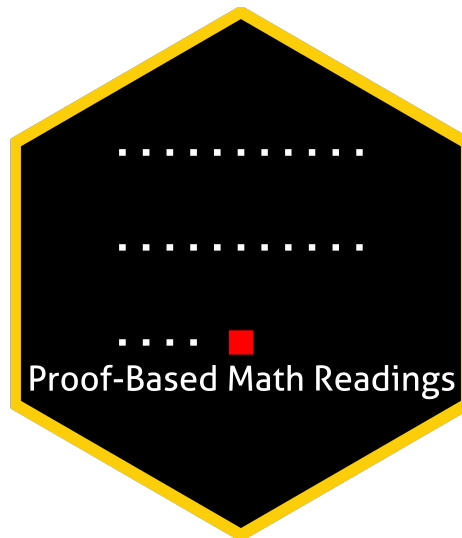
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0 Motivation

- *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 *Numerical Linear Algebra*.

1 Prerequisites

- Proof Techniques resources below.
- Please use the  **Application Form** to join our reading group; you will receive a response within a week.

2 Format

- 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 .

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-written and well-structured.

-  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 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)

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 \(4th Edition, 2013, Errata and M-files\)](#)