Proof-Based Math Readings Session: Numerical Linear Algebra[*]
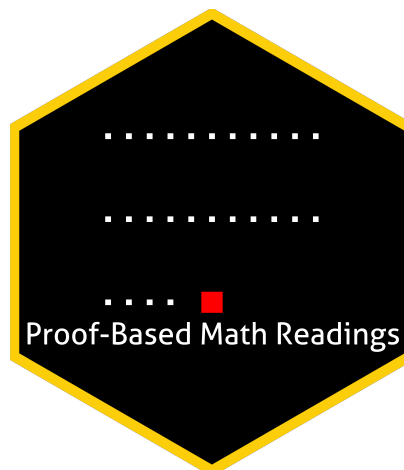
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Proof-Based Math Readings

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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 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

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)

2.2 Supplementary

2.2.1 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)

3   Reading Schedule

- **NLA** is the abrevviation 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	

4   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)