

Proof-Based Math Readings

Session: Bayesian Statistics

2024 Winter

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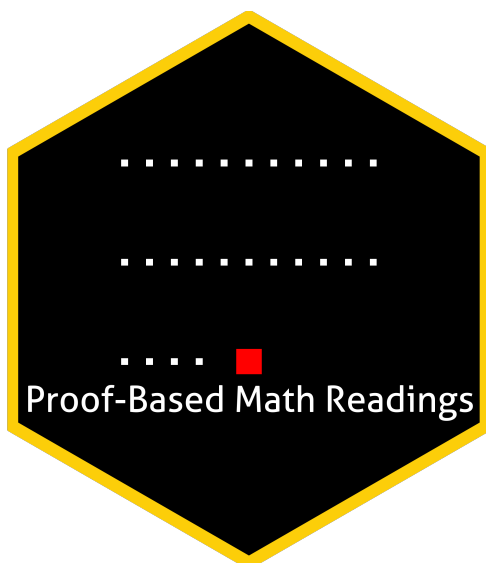
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0 Motivation

- *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 *Bayesian Statistics*.

1 Prerequisites

- CGPA: 3.00/4.00.
- Proof and Statistics resources below are the prerequisites for this session.
- Please use the [🔗 Application Form](#) to join our reading group anytime.
- 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, and watch the chapter videos from the book's playlist.

3 Resources

3.1 Main Book

Bayesian Econometrics - Gary Koop (2003) is our main book for this session because it is well-written and well-structured.

📖 Bayesian Econometrics - Gary Koop (2003)

📖 [Bayesian Econometrics - Gary Koop \(2003, Errata\)](#)

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, Companion playlist by Jeremy Teitelbaum)

📺 Book of Proof - Richard Hammack (3.3 Edition, 2022, Companion playlist by Michael Penn)

3.2.2 Statistics

📖 Introduction to Probability - Dimitri P. Bertsekas, John N. Tsitsiklis (2nd Edition, 2008, Summary Material)

📺 Introduction to Probability - Dimitri P. Bertsekas, John N. Tsitsiklis (2nd Edition, 2008, Playlist)

📖 Introduction to Probability - Dimitri P. Bertsekas, John N. Tsitsiklis (2nd Edition, 2008, Solutions & Errata)

3.2.3 Bayesian Statistics

📖 Bayesian Econometric Methods - Joshua Chan, Gary Koop, Dale Poirier, Justin Tobias (2nd Edition, 2019)

📖 [Bayesian Econometric Methods - Joshua Chan, Gary Koop, Dale Poirier, Justin Tobias \(2nd Edition, 2019, Errata\)](#)















📺 Bayesian Statistics: A Comprehensive Course - Ben Lambert (2014)

📺 [A Student's Guide to Bayesian Statistics - Ben Lambert \(2020\)](#)

📖 Bayesian Data Analysis - Andrew Gelman, John Carlin, Hal Stern, David Dunson, Aki Vehtari, Donald Rubin (3rd Edition, 2022)

4 Reading Schedule

- BE is the abbreviation of **Bayesian Econometrics - Gary Koop (2003)**.

 BE	Week 01 
Appendix A: Introduction to Matrix Algebra Appendix B: Introduction to Probability and Statistics 1: An Overview of Bayesian Econometrics	
 BE	Week 02 
2: The Normal Linear Regression Model with Natural Conjugate Prior and a Single Explanatory Variable	
 BE	Week 03-04 
3: The Normal Linear Regression Model with Natural Conjugate Prior and Many Explanatory Variables	
 BE	Week 05-06 
4: The Normal Linear Regression Model with Other Priors	
 BE	Week 07-08 
5: The Nonlinear Regression Model	
 BE	Week 09-10 
6: The Linear Regression Model with General Error Covariance Matrix	
 BE	Week 11-12 
7: The Linear Regression Model with Panel Data	