

Proof-Based Math Readings

Session: Bayesian Statistics

2024 Winter

Zeki Akyol*

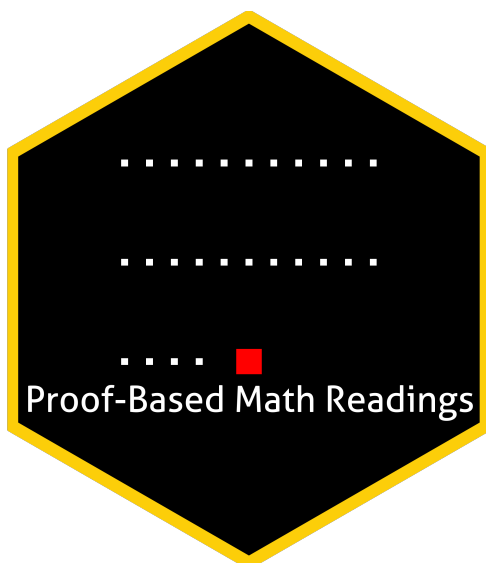
Department of Economics
Istanbul Technical University

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

Version: 27 April 2024, 12:12 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
3.2.2 Statistics	2
3.2.3 Bayesian Statistics	2
4 Reading Schedule	3




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	