Stat 153: Introduction to Time Series

UC Berkeley, Spring 2016

Lectures:	102 Moffitt Undergraduate Library, TTh 3:30–5 pm
Sections:	344 Evans Hall, W 9–11 am
	344 Evans Hall, W 12–2 pm
Instructor:	Yuekai Sun [yuekai@berkeley.edu]
GSI:	Donovan Lieu [dlieu333@berkeley.edu]
Office hours:	387 Evans Hall, W 3–4 pm, Th 1–2 pm (Yuekai)
	446 Evans Hall, M 9–10 am, TF, 1–2 pm, Th 10–11 am (Donovan)

Course description

STAT 153 is an introduction to time series analysis. The course covers stationary processes, spectral analysis of stationary processes, ARMA models, ARIMA and seasonal ARIMA models, state-space methods. Students should be familiar with probability at the level of STAT 134 and statistics at the level of STAT 135.

Grading

20% homework, 40% midterms, 40% final exam. If your final exam score is higher than your lowest midterm score, your lowest midterm score will be replaced by your final exam score.

Assignments

Problem sets are assigned roughly once every two weeks. You are encouraged to collaborate on problem sets with your classmates, but the final write-up (including any code) *must be your own*. If you collaborate with your classmates on a problem set, you *must* acknowledge your collaborators on your problem set.

Exams

There are two in-class midterms: the first, on Thursday, March 3 and the second, on Thursday, April 7. The final exam is a take home exam that will be due during finals week.

Textbook

The text is *Time Series Analysis and Its Applications* by R.H. Shumway and D.S. Stoffer [tsa3]. I will follow it, but not too closely. Other good references for the course material are

- *Time Series: Theory and Methods* by P.J. Brockwell and R.A. Davis [SpringerLink].
- *Econometrics* by F. Hayashi. Chapters 2, 6, and 9 covers ARMA and ARIMA models at a slightly higher level than our course.
- *Fourier Analysis of Time Series* by P. Bloomfield.
- *Time Series Analysis by State Space Methods* by J. Durbin and S.J. Koopman.