

Course Syllabus for Statistics 481/581: Introduction to Time Series Analysis.

Instructor Information:

Instructor: Dr. Li Li

Email: llis@unm.edu

Meeting location and times: SMLC 352/TR 9:30 am-10:45 am

Office: Science and Mathematics Learning Center 314

Office Hours: Thursdays 12pm-2pm

Course Material:

- Forecasting: Principles and Practice: <https://otexts.com/fpp3/>
- Recommended: Time Series Analysis 2nd Edition by Jonathan D. Cryer (Author), Kung-Sik Chan (Author)

Topics:

- Time series graphics
- Forecasting toolbox
- Evaluating model accuracy
- Time series regression methods
- Time series decomposition
- Exponential smoothing
- ARIMA models, Seasonal ARIMA models
- Dynamic regression models
- Tentative additional topics: change point detection, spectral analysis

Prerequisite

- Prerequisite of this class: STAT 461 / 561 Probability. Prerequisite concepts: random variables, discrete and continuous distributions, expectation, multivariate distributions, conditional probability and conditional expectation, independence.
- Additional courses preferred: STAT 453/553 Statistical inference. Understanding of likelihood construction, maximum likelihood estimates, asymptotic distribution of estimators, confidence intervals.

Programming:

Elementary R programming and Latex skills are needed and will be trained as well. Weekly labs will be given in the format of Rmarkdown. Please submit pdfs through links on UNM Learn.

Assessments:

A commitment of class attendance is required. If you have emergencies or need sick leave, I am willing to extend deadlines for labs. You are encouraged to discuss with each other about labs but copying solutions is forbidden. Your final course grade will be based on the following assessments:

Labs	80%
Final Project	20%