

## STAT 463 Learning Objectives

Upon successful completion of this course, students are expected to understand

1. the important graphical features of a time series, including seasonal and non-seasonal trends
2. the distinction between independent and correlated data and how correlated errors complicate the assumptions of the usual regression model
3. the properties of stationarity, including the definitions of autocovariance and autocorrelation
4. how to difference time series data to remove seasonal and non-seasonal trends
5. the properties of ARMA models, including the distinction between autoregressive and moving average components
6. how to estimate the parameters for ARMA models and how to choose among several candidate models based on diagnostic techniques
7. how to use estimated time series models to predict unknown observations ahead in time
8. use R software to perform EDA, model fitting, model diagnostics, forecasting and simulation for time series
9. use and interpret R software output from time series modeling exercises, in combination with theoretical understanding of time series modeling, to gain practical insights into the structure of real-world time series