

IE 360
Statistical Forecasting and Time Series

Course Description: Exploring data patterns; moving averages, simple and double exponential smoothing, smoothing methods with seasonal data, Holt-Winter method; simple and multiple regression; regression with time series data; ARIMA models; Box-Jenkins method for forecasting; demand management and applications.

In this course we will provide an overview of forecasting methodologies. We aim to develop, design and compare different forecasting methods. We discuss techniques for selecting the best method that fits specific decision-making requirements of an organization. The discussion will be motivated using case studies and industry projects.

Topic
Introduction and motivation
A review of basic statistical concepts
Exploring data patterns
Simple and multiple linear regression
Regression with time series data
Moving averages and smoothing methods
Time Series Analysis - ARIMA methods

Instructor: Refik Güllü, refik.gullu@boun.edu.tr

Lecture Hours: Tuesday 9:00-11:00 (M 3120), Thursday 9:00-11:00 (M 3100)

Office Hours: Tuesday 13:00-14:00, Wednesday 11:00-12:00

Course Assistant: Betül Ahat, betul.ahat@boun.edu.tr

Office Hours of TA: To be announced

Books to be used in the course:

- Business Forecasting, 8th Edition, John E. Hanke and Dean W. Wichern, 2005, Pearson Prentice Hall, ISBN: 0-13-122856-0
- Introduction to Time Series Analysis and Forecasting, Montgomery, Jennings, and Kulahci, 2008, Wiley.
- Forecasting: Principles and Practice, Hyndman and Athanasopoulos, 2014, Otext.

Software Use: We will be using R as the main computational tool (There will be a number of tutorial lectures and examples using R)

Grading: Homework Assignments (15 %), Class Project (15 %), Midterm (30 %), Final Exam (40 %).

Midterm Date: Tuesday, April 11th, 2017 (Please mark your calendar!)

Please check course web page <http://moodle.ie.boun.edu.tr/> frequently for announcements.
Enrollment Key: arima2017