King Saud University

College of Business Administration

Quantitative Analysis Department (QUA)

Business Forecasting

SDE 542

Instructor:

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Course Description

Forecasting is used to predict the future events or conditions. Therefore it allows us to make better decisions with low uncertainty. This course is designed to give students a better understanding of the importance of forecasting in business. This course will cover a variety of statistical forecasting methods that are applicable in many functional areas of business, including simple and multiple regression, exponential smoothing, seasonal decomposition, and ARIMA models. The emphasis will be on learning to apply these methods to real data using the statistical package SPSS.

Course Objectives

- To learn a variety of business forecasting techniques.
- To understand the basic concepts of business forecasting.
- Understand the importance of forecasting in making decisions in business environments.
- To be able to apply forecasting methods to business applications.
- Use the software packages for developing forecasting models.

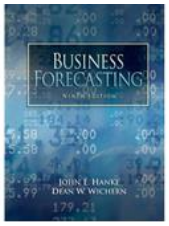
Course Evaluation

1. Assignments and Project (20%)
2. Midterm exams (40%)
3. Final exam (40%)

Text book

Business Forecasting

John E. Hanke, Dean W. Wichern and Arthur G. Reitsch, Ninth Edition, Prentice Hall, 2009



Other Forecasting References

- *Business Forecasting (with ForecastX software)* by Wilson and Keating, 4th ed. (another very similar book, with a popular Excel add-in for forecasting)
- *Forecasting Principles and Applications* by DeLurgio, 1st ed. (a more comprehensive and more detailed book, with better coverage of more advanced methods like ARIMA)
- *Elements of Forecasting* by Diebold, 3rd ed. (more advanced text, somewhat math-intensive for an MBA audience, covers some fancier models than can be fitted with Statgraphics, but some of the examples of modeling are sloppy).
- https://www.otexts.org/fpp online textbook on forecasting.
- http://people.duke.edu/~rnau/411home.htm contains notes and materials on statistical forecasting.
- http://www.statsoft.nl/textbook/stathome.html is a very good, online reference.
- http://www.ibf.org/ International Business Forecasting website

Final Project

At the end of the course a final project will be due. This may be a data analysis project of your own data set. Ideally, the aim of the final project will be to develop a forecasting model for a data set in which you are especially interested, although other kinds of statistical analysis are also admissible. The important thing is that the project should have significant data analysis content and should use some of the modeling concepts introduced in the course.

Homework Assignments

There will be regular homework assignments during the term. The homework assignments will all be computer-based, involving the development of forecasting models for one or more data sets

Course Contents and Plan

LECTURE	TOPIC	DATE	READING
1	Introduction to Business Forecasting	Week 1	Ch 1
2	The forecast Process	Week 2	Ch 2
3	Moving Averages and Exponential Smoothing	Week 3	Ch 3
4	Moving Averages and Exponential Smoothing	Week 4	Ch 3
Midterm exam 1		**24 /02/2020**	
5	Forecasting with Regression	Week 5	Ch 4
6	Forecasting with Regression	Week 6	Ch 5
7	Time-Series Decomposition	Week 7	Ch 6
8	Time-Series Decomposition	Week 8	Ch 6
Midterm exam 2		**30 /03/2020**	
9	ARIMA	Week 9	Ch 7
10	ARIMA	Week 10	Ch 7
11	Combining Forecasting Models	Week 11	Ch 8
12	Forecast Implementation	Week 12	Ch 9
Final Exam		**27 / 04 / 2020**	