DSC3216: Forecasting for Managerial Decisions

NATIONAL UNIVERSITY OF SINGAPORE
School of Business
Department of Decision Sciences

Semester II, 2016/2017

DMINISTRATIVE INFORMATION

Instructor:	Dr. HE, Long	**Office:**	BIZ1 8-73
Office Hours:	Friday 11AM-12PM, or by appointment	**Email:**	longhe@nus.edu.sg

Prerequisite: Business Analytics

Assessment:

Participation	5%,
Assignments	15%,
quiz	30%,
case study	10%,
project	40%

References:

i. Business Forecasting, John E Hanke, Arthur Reitsch and Dean W. Wichern, 9th ed (2009), Prentice Hall
ii. Data Science for Business: What you need to know about data mining and data-analytic thinking (2013), Provost, F., and T. Fawcett. O'Reilly Media

COURSE OUTLINE

The objective of this course is to develop an understanding of data analytics with emphasis on forecasting as a powerful tool for analyzing complex issues and solving business problems. The course will make productive use of analytics tools available in MS Excel (and dedicated add-ins) and R (optional). While the class focuses on simplified models, it aims to bridge the classroom knowledge and business applications.

Week	Topic	Remark
1	Introduction and Review of Statistics	
2	Business Problems and Data Science Solutions	
3	Time Series Methods	
4	Predictive Modeling	
5	Fitting a Model to Data: Regressions and Overfitting	Project Proposal
6	Similarity, Neighbors, and Clusters	
7	The Box-Jenkins Methods: ARIMA model	Midterm
8	Decision Analytical Thinking I: What Is a Good Model?	
9	Visualizing Model Performance	
10	Holiday	Case Study
11	Decision Analytic Thinking II: Toward Analytical Engineering	

12	Other Data Science Tasks and Techniques	
13	Data Driven Business and Conclusion	

ASSIGNMENT

Assignment will generally be due on 12noon Fridays. Everyone should turn in **individual soft copies** via IVLE. ***LATE ASSIGNMENT WILL NOT BE ACCEPTED.*** The lowest assignment score will be dropped.

QUIZ

There will be 1 or 2 quizzes. The quiz will be cumulative and comprehensive. Quizzes will be closed book, but you may bring one formula sheet. The quiz duration will be 1.5 hours each.

TEAM PROJECT

The project for this class is to do a careful data analysis of real application. Choose a question to address that is of particular interest to you. Your project should include a clearly defined business problem, data preparation, analytic model, and solution supported by performance evaluation.

The project is a group project, to be done in groups of four to five. Each group member will anonymously evaluate the participation of the other members of the group, and this will be considered in grading.

Team Project Part I - Proposal: Due Friday, Feb 12.
Write a proposal for your project. Explain the business problem, managerial decisions you are making, and data source and one or two lines of sample data. (No more than one page.)
Team Project Part II – Final report: Due Friday, Apr 22

QUESTIONS

For questions regarding to course materials, please post on IVLE Forum. For issues in course administration, please email with subject "DSC3216+Name+ID".