

Amrita Vishwa Vidyapeetham  
Amrita School of Business

MBA 2017-2019  
Trimester I

## DATA ANALYTICS I (SY406E)

July 2017

### Course Plan

#### 1. INTRODUCTION & COURSE DESCRIPTION

Welcome to the study of DATA ANALYTICS I. This short paper (Course Plan) is intended to provide you with the objectives of this course, the pedagogy (teaching and learning methodology), the session-wise plan, the textbook used, the instructor's expectations from the students taking this course, the examinations taken and the evaluation system. This course outline also provides the plan for preparing for each class session of the 32 sessions of this course.

#### 2. COURSE OBJECTIVE

Data Analytics I deals with the study of statistics for business applications. Today, the issue for managers is not a shortage of information but how to use available information for better decision-making. Thus the objective of this course is:

1. To provide the analytical tools needed for making informed business decisions using data.
2. To explore the statistical forecasting techniques for business

You are expected to apply what you learn from this course (along with another course called research methodology, taught later to you) in successfully conducting business research involving data analysis, in the future, including the practical field research work to write term papers or do summer project at the end of your first year here.

For students of statistics to become practitioners of statistics, the skills required are, (1) employing the correct *statistical technique* to solve a particular problem, using sample data, and (2) understanding the *conceptual foundations* of statistics in order to interpret correctly the results. In this course, these objectives will be met by, (1) working through problems in applied business statistics, and similarly, (2) all the case analyses mentioned in this outline using EXCEL templates (see the CD given along with your book). For those who wish to explore further advanced and modern statistical computations, there is a powerful graphical, computational, and programmable environment, called as **R**. R is open source freeware like Linux, and is freely downloadable from website *cran.us.r-project.org*. You may

visit this website and download the latest binary MS windows version, including the packages you would need, on your laptop.

### **3. COURSE CONTENT**

The specific topics studied are probability distributions, sampling distribution, point estimates and interval estimates, hypothesis testing on one or more populations, analysis of variance, correlation, simple linear regression model, multiple regression model, non-parametric methods, and applications to quality control.

### **4. RECOMMENDED READINGS**

One text book will be used for this course. The text used is:

Aczel, Amir D and Jayavel Sounderpandian, Complete Business Statistics, Special Indian Edition, 7<sup>th</sup> Edition, Tata McGraw Hill, New Delhi, 2006 (AS).

### **5. LEARNING METHODOLOGY & EXPECTATION FROM STUDENTS**

The class room sessions should be interactive with active participation from the students. A class session will typically consist of, exposition of principle & concept, question & answer rounds, classroom workout and discussion of problems & its solutions and invited case presentations. You must read the topics in advance of the class room sessions to get a fair amount of idea about the topic. You must maintain a notebook of the work being done in this course, including the work done in the classroom. You are expected to write down the lecture notes provided in the class room. Group learning is an important learning tool and it is highly encouraged. You are expected to work in a group consisting of 4-5 students. First try the problems at the individual level and discuss the solutions within the study group members. Such practices reinforce learning and promote preparedness. The examinations are mostly numerical problem-solving oriented, and exam questions will be very similar to what is given in section and chapter end. The best way to learn numerical problems is to practice it rigorously. So please practice doing more problems. Being familiar with solving all the problems in sections and chapter is the best way to prepare for the course and examination. We will also use laptops as much as possible in our classroom sessions, and solve statistics problems in Excel using data and templates available in your CD.

### **6. SESSION-WISE PLAN**

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|----------------------|--|
| <b>SESSION 1,2</b>   | <b>Probability and Random Variables (AS, Read Ch.3)</b>      |
| <b>SESSION 3</b>     | <b>Binomial Distribution (AS, Read Ch.3)</b>                 |
| <b>SESSION 4,5</b>   | <b>The Normal Distribution (AS, Read Ch.4)</b>               |
| <b>SESSION 6,7</b>   | <b>Sampling &amp; Sampling Distributions (AS, Read Ch.5)</b> |
| <b>SESSION 8,9</b>   | <b>Confidence interval estimation (AS, Read Ch.6)</b>        |
| <b>SESSION 10,11</b> | <b>Hypothesis testing – One Population (AS, Read Ch.7)</b>   |

**SESSION 12,13      Hypothesis Testing – Two Populations (AS, Read Ch.8)**

**SESSION 14,15      Analysis of Variance (AS, Read Ch.9)**

**SESSION 16,17      Simple Linear Regression (AS, Read Ch.10)**

**SESSION 18,19      Multiple Regression (AS, Read Ch.11)**

**SESSION 20,21      Nonparametric Methods and Chi-Square Tests (AS, Read Ch.14)**

**SESSION 22,23      Nonparametric Methods and Rank based tests**

**Ten Sessions in addition to above will be used to practice the above learnings in software's based on applied cases/problems**