Big Data Analytics in Business

Course Objectives

The course emphasizes that business analytics is not a theoretical discipline: these techniques are only interesting and important to the extent that they can be used to provide real insights and improve the speed, reliability, and quality of decisions. The concepts learned should help identify opportunities in which business analytics can be used to improve performance and support important decisions. It should make the management student aware of analytics which can be used — and misused — within an organization.

Syllabus

Overview of big data, predictive analytics, prescriptive analytics, Introduction to R and delivering results.

Expected Outcomes

Upon completion of this course, the students will be able to:

1. Help the student think critically about data and the analyses based on those data. 2. Identify opportunities for creating value using business analytics. 3. Estimate the value created using business analytics to address an opportunity. 4. Understand and apply these methods to drive value.

References

1. Bernard Marr, Big Data: Using Smart Big Data, Analytics and Metrics to Make Better Decisions and Improve Performance, Wiley, 2015

2. Vignesh Prajapati, Big Data Analytics with R and Haoop, Packet Publishing 2013

3. Chris Eaton, Dirk Deroos, Tom Deutsch et al., Understanding Big Data Analytics for Enterprise Class Hadoop and Streaming Data, McGrawHIll, 2015.

4. Alberto Cordoba, Understanding the Predictive Analytics Lifecycle, Wiley, 2014.

5. Eric Siegel, Thomas H. Davenport, Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die, Wiley India Private Ltd, 2016.

6. R. N. Prasad, Seema Acharya, Fundamentals of Business Analytics, Wiley, 2015.

7. McKinsey Chief Marketing & Sales Officer Forum, Big Data, Analytics, and the Future of Marketing & Sales, McKinsey & Company, 2013

8. James Manyika, Michael Chui, Brad Brown, Jacques Bughin, Richard Dobbs, Charles Roxburgh, Angela Hung Byer, Big data: The next frontier for innovation, competition, and productivity, http://www.mckinsey.com/insights/mgi/research/technology_and_innovation/big_data_the_next_fron tier_for_innovation

9. C Nina Zumel, John Mount, Practical Data Science with R, DreamTech Press, 2014.

10. Jure Leskovec, Anand Rajaraman, Jeffrey D. Ullman, Mining of Massive Datasets, Cambridge University Press, 2014

11. Mark Gardener, Beginning R - The Statistical Programming Language, John Wiley & Sons, Inc., 2013.

12. Tony Ojeda, Sean Patrick Murphy, Benjamin Bengfort, Abhijit Dasgupta, Practical Data Science Cookbook, Packt Publishing Ltd., 2014.

13. http://www.johndcook.com/blog/r_language_for_programmers/

14. http://bigdatauniversity.com/

15. http://home.ubalt.edu/ntsbarsh/stat-data/topics.htm#rintroduction

Units Topics

1 Overview of Big Data:

Overview - history of big data, its elements, career related knowledge, advantages, disadvantages; Use of Big Data in Businesses - big data in marketing, analytics, retail, hospitality, consumer good, defense; Technologies for Handling Big Data -

Hadoop, Cloud computing (features, advantages, applications); Data Warehousing and OLAP concepts;

Advanced Analysis - Linear Regression Analysis, Logistic Regression, Decision Tree, Cluster Analysis, Market Basket Analysis.

2 Predictive Analytics

Predictive Analytics - Predicting outcomes, lending analytics, recommendation analytics; Quality of predictions, healthcare analytics, financial analytics; Predictions and skill versus luck, sports analytics.

First Internal Examination

3 Prescriptive Analytics

Testing / retail analytics - Simulating the future, pension analytics; Optimizing complex decisions / salesforce analytics; Optimizing with multiple objectives / portfolio analytics;

Decision-support systems -from concept to deployment- supply chain analytics.

4 Introduction to R

R Software - Reading and getting data into R – ordered and unordered factors – arrays and matrices – lists and data frames – reading data from files – probability distributions – statistical models in R - manipulating objects – data distribution.

Second Internal Examination

5 Delivering Results

Documentation and deployment – producing effective presentations – Introduction to graphical analysis – plot () function – displaying multivariate data – matrix plots – multiple plots in one window - exporting graph - using graphics parameters.

Final Examination