

**International Management Institute, New Delhi**

**Term III (Jan – Mar 2020)**

**Post Graduate Diploma in Management (PGDM)**

**Course: Business Analytics (BA)**

**Course Code: IM-618**

**Credit: 3**

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| Module 1: 8 sessions | Module 2: 6 sessions | Module 3: 6 sessions |
| Faculty: Suprateek Das  Vice President, Consumer Credit Risk CoE,  American Express (India) Pvt. Ltd.  Email: [suprateek81@gmail.com](mailto:suprateek81@gmail.com)  Student Interaction Time:  By appointment | **Faculty:** Prof.Kakali Kanjilal **Direct/Ext. No.:**47194122/122 **Email:** [kakali@imi.edu](mailto:kakali@imi.edu) **Student Interaction Time:**  By appointment | **Faculty:** Prof. Prerna Lal  **Direct/Ext. No.:** 47194127/127 **E-Mail:**[prernalal@imi.edu](mailto:prernalal@imi.edu) **Student Interaction Time:** Monday, 2-3 pm |

**Course Objectives:**

Organizations have a wealth of data residing in their databases generated as a result of business processes. Business analytics is a set of data analysis and modeling techniques for understanding business situations and improving business decisions. Business analytics solutions help organizations in addressing challenges in key areas such as improving customer profitability and marketing effectiveness, gaining actionable insights into financial and business performance at branch or enterprise level and managing risk across the enterprise.

Upon successful completion of the course, you should possess valuable practical analytical skills that will equip you with a competitive edge in almost any contemporary workplace. By the end of the course student should be:

1. able to acknowledge the business analytics potential of today’s data rich environment
2. able to explain key data analysis methods for generating business insights such as: classification, data reduction, exploration and prediction.
3. able to identify to when to use which technique.

**Mapping between Course Objectives and Program Objectives:**

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| **Program Objectives** | **Course Objective 1** | **Course Objective 2** | **Course Objective 3** |
| **Objective 1.1**  Student should be able to write well organized and grammatically correct business reports and letters. |  |  |  |
| **Objective 1.2**  Student should be able to make effective oral presentations. |  |  |  |
| **Objective 2.1**  Student should be able to demonstrate critical thinking skills by understanding the issues, evaluating alternatives on the basis of multiple perspectives and presenting a solution including conclusions and implications. | **√** | **√** | **√** |
| **Objective 2.2**  Student should be to demonstrate problem solving skills by understanding and defining the problem, analyzing it and solving it by applying appropriate theories, tools and techniques from various functional areas of management. | **√** | **√** | **√** |
| **Objective 3.1**  Student should be able to illustrate the role of responsible leadership in management. |  |  |  |
| **Objective 3.2**  Student should be able to identify social concerns and ethical issues in management. |  |  |  |
| **Objective 4.1**  Student should be able to identify challenges faced by the organization at the global level. |  |  |  |
| **Objective 4.2**  Student should be able to take decisions in the global business environment. |  |  |  |

**Session Plan:**

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| **Sessions required** | **Topic** | **Readings & Exercises\*** |
| **Module 1: SQL (8 sessions)** | | |
| 1-2 | Evolution of Analytics and Data MiningIntroduction to Programing and AlgorithmDatabase Management Starter | *Mr. Suprateek Das & Team* |
| 3-4 | SQL CompositionBasic Terminologies and CommandsBasic Structure of QueryRetrieving data from tables – examples based on sample dataFiltering Records using Where ClauseSpecial and Comparison operators and their precedenceSummarizing Data using Group ByFiltering Summarized Data – Having ClauseCase Expression | *Mr. Suprateek Das & Team* |
| 5-6 | Nested QueriesJoins (Inner, Left, Right, Outer and Cross Join)FunctionsBest Practices | *Mr. Suprateek Das & Team* |
| 7-8 | **Project Presentation (Data to be given by the instructor)** | |
| **Module 2: Data Diagnostics and Predictive Module (6 sessions)** | | |
| 9-10 | Data Diagnostics  Outlier and Missing Treatment  Variable Transformations  Data Partitions | *Chapter 2 of Textbook*  *Exercise in Lab: Child Mortality* |
| 11-12 | Regression  Stepwise Regression  Intro to Logit Regression | *Chapter 6 and 10 of Textbook*  *PPT discussed in class*  *Exercise in Lab: Crime Rate Estimation* |
| 13-14 | Regression Diagnostics  Factor Analysis  Regression with PCA | *Chapter 4 of Textbook*  *PPT Discussed in Class*  *Exercise in Lab: Breakfast Cereals* |
| **Mid-Term Exam** | | |

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| **Sessions required** | **Topic** | **Readings & Exercises\*** |
| **Module 3: Classification and Association** | | |
| 15 | Bayesian Classifiers | *Chapter 8 of Textbook*  *Exercise in Lab: Classifying Flight record* |
| 16 | Nearest-Neighbor Classifiers | *Chapter 7 of Textbook*  *Exercise in Lab: Riding Movers* |
| 17-18 | Decision Trees | *Chapter 9 of Textbook*  *Exercise in Lab: Acceptance of personal loan* |
| 19 | Cluster Analysis | *Chapter 15 of Textbook*  *Exercise in Lab: Public utilities* |
| 20 | Association Analysis | *Chapter 14 of Textbook*  *Exercise in Lab: Rules for similar book purchase* |
| **End-Term Exam** | | |

***\*Note:*** *The instructor may give other cases, datasets and reading materials as and when needed.*

# Software

R , R Studio

**Pedagogy:**

The course will be taught with a blend of presentations, interactive lectures and discussions. It will be supplemented by assignments, case discussion and practical exercises.

**Evaluation:**

* Quiz (Module 2+Module 3) :  20% (10%+10%)
* Project (Module 1) :  20%
* Mid Term (Module 2) :  30%
* End Term (Module 3) :  30%

**Text Book & Reading Material:**

* “Data Mining for Business Intelligence: Concepts, Techniques, and Applications in R” by Galit Shmueli, Nitin R. Patel and Peter C. Bruce, Wiley, 2018 (Textbook for Module 2 and 3)

**Reference Books:**

* Berson, A., Smith, S., and Thearling, K., *Building Data Mining Applications for CRM*, Tata McGraw-Hill, 2000. (Low Price Edition)
* Berry, M. J. A., and Linoff, G. S., *Mastering Data Mining*, John Wiley and Sons, 2000. (Low Price Edition)
* Dyché, J., *TheCRM Handbook: A Business Guide to Customer Relationship Management*, Pearson Education, 2002. (Low Price Edition)
* Damodar N Gujarati., *Basic Econometrics*, McGraw Hill, 5th Edition
* Wooldridge., *Introductory Econometrics, A Modern Approach,* Cengage Learning, 4th Edition