



Analytics For Managers (MGT-854)

National University of Sciences & Technology
(NUST)

MBA
2k23

Course Details:

Course Title: Analytics for Managers

Credit Hours: 3

Course Code: MGT-854

Pre-requisite: None

Course Description:

Data analytics is the art and science of gathering, analyzing, and visualizing data. Marketing and the wider field of business are undergoing rapid transformation, whereby there has been a shift from traditional media to online platforms. A large amount of data collected by companies today is related to marketing and customer actions.

It is imperative for today's graduates to be well-versed in data and analytics techniques. Organizations, whether small or large are overwhelmed with data. This data can provide a wealth of information that if optimally utilized can help with informed decision making. Analytics is all about measurement where effectiveness of business decisions can be gauged for effectiveness and viability of investments.

This course introduces the tools that learners will need to convert raw data into business insights. The included exercises will be conducted using Power BI, (and other advanced tools), ensuring that learners will have the tools they need to extract information from the data available to them. The course will include lectures and exercises, and applied projects and tutorials to enhance student understanding and skill.

Course Learning Outcomes:

Upon completion of this course, the student should be able to:

1. CLO 1: *Understand* data analytics basics including data warehouse, extraction, cleaning, storing and validation.
2. CLO 2: *Identify* relevant business problems that can be solved through business analytics.
3. CLO 3: *Analyze* data through relevant tools to recommend solutions to a variety of business problems.
4. CLO 4: *Develop* data visualizations and dashboards for decision making.

Program Goals & Learning Objectives:

Goals & learning objectives of the MBA Program are:

Goal 1: Students will be capable of critical thinking

LO 1.1: Students will be able to solve problems with the application of business knowledge

LO 1.2: Students will be able to evaluate competing decision criteria and alternatives

Goal 2: Students will demonstrate leadership skills

LO 2.1: Students will be able to develop the ability to lead and manage in teams

LO 2.2: Students will be able to make sound decisions

Goal 3: Students will learn to communicate effectively

LO 3.1: Students will be able to communicate effectively in oral presentations

LO 3.2: Student will be able to create professional reports

Goal 4: Students will deal with the ethical dilemmas that arise in a business environment

LO 4.1: Students will be able to identify ethical concerns emanating from a business situation

LO 4.2: Students will be able to apply ethical guidelines to address business problems by examining a set of alternatives

Mapping - CLOs with LOs

Learning Objective	LO 1.1	LO 1.2	LO 2.1	LO 2.2	LO 3.1	LO 3.2	LO 4.1	LO 4.2	Not mapped	Evaluation Item
CLO 1									x	Quiz
CLO 2									x	Assignment
CLO 3		✓								Final exam
CLO 4	✓									Quiz

Legends indicate:

✓ mapped and assessed CLO

● mapped but not assessed CLO

x unmapped CLO

Required Course Material:

Textbook (s):

1. **Evans, J.R., 2017.** *Business analytics: Methods, models, and decisions.* **Pearson.**
2. **Sharda, R., Delen, D. and Turban, E., 2014.** *Business intelligence: a managerial perspective on analytics.* **Pearson.**

Reference Book (s):

Gert H. N. Laursen, Jesper Thorlund, 2017, *Business analytics for managers, Taking Business Intelligence Beyond Reporting*, Second Edition, by **John Wiley & Sons, Inc.**

Other Material:

1. Harvard case studies
2. Instructor notes

Software

The following software will be used for solving complex analytics problems during the course and projects

1. Microsoft Excel
2. Power BI

Course Evaluation:

Grading will be done as per NBS criteria. The breakup is as follows:

Final Exam	35%
Midterm	20%
Final Project	20%
Quizzes	15%
Assignments/Case studies	10%

Weekly Schedule:

Week	Lecture No. and Topic	Preparation Material	Session Outcomes (Students should be able to...)
1	<u>Lecture 1:</u> Introduction to the course • Course outline and policies • Course assessment, etc. • Data Science • Introduction to data analytics <u>Lecture 2:</u> • Types of analytics • Big data for analytics • Strategic analytical perspective • B2B Integration	- Chapter 1 of Textbook 1 - Lecture notes	CLO 1: Understand data analytics basics including data warehouse, extraction, cleaning, storing and validation

Week	Lecture No. and Topic	Preparation Material	Session Outcomes (Students should be able to...)
2	<u>Lecture 3 & 4:</u> Data Warehousing • Overview of data warehouse (DW) • Extract, Transform and Load (ETL) processes • Characteristics of DW • Data modeling for DW • Analytics at DW level • Functionality of DW • Multi-dimensional schemas	- Chapter 3 of Textbook 2 - Chapter 5 of Reference book 1 - Lecture notes	CLO 1: Understand data analytics basics including data warehouse, extraction, cleaning, storing and validation.
3	<u>Lecture 5 & 6:</u> Web, Text, and Search analytics • Online data • Collecting social data • Social media analytics • Web usage mining • Web analytics technologies • Search engine marketing • Search engine optimization • Search and audience analytics	- Chapter 5 of Textbook 2 - Lecture notes	CLO 2: Identify relevant business problems that can be solved through business analytics
4	<u>Lecture 7 & 8:</u> Text Mining • Text mining process • Establish the corpus • Create the term document matrix • Extract the knowledge • Marketing applications • Data to anticipate Crisis • Data for customer service • Natural language processing • Netlytic (tool) tutorial	- Chapter 5 of Textbook 2	CLO 3: Analyze data through relevant tools to recommend solutions to a variety of business problems

Week	Lecture No. and Topic	Preparation Material	Session Outcomes (Students should be able to...)
5	<u>Lecture 9 & 10:</u> Sentiment analysis (SA) • Overview of SA • Benefits of SA • Sentiment Analysis Process • Methods for polarity identification • Identifying semantic orientation of sentences and phrases • Limitations of SA • SentiStrength (tool) tutorial	- Chapter 5 of Textbook 2	CLO 3: Analyze data through relevant tools to recommend solutions to a variety of business problems
6	<u>Lecture 11 & 12:</u> • Descriptive Statistics • Visualizing a single and multiple variable • Hypothesis testing • Parametric and non-parametric tests	- Lecture notes	CLO 2: Identify relevant business problems that can be solved through business analytics
7	<u>Lecture 13 & 14:</u> Thematic analysis • What is qualitative data • Qualitative data analysis • Theme detection in social media Predictive analytics • Time series analysis • Regression basics • Linear regression • Multiple regression	- Lecture notes - Internet tutorials - Chapter 10 of Textbook 1 - Chapter 4 of Reference book 1	CLO 3: Analyze data through relevant tools to recommend solutions to a variety of business problems
8	<u>Lecture 15 & 16:</u> Mid review of project (2 Pager Report + 5 min PPT) • project introduction • what has been achieved • what will be achieved in this project (deliverables) • selection of correct tool(s) to solve that problem		CLO 2: Identify relevant business problems that can be solved through business analytics
9	<u>MID-TERM EXAM WEEK</u>		

Week	Lecture No. and Topic	Preparation Material	Session Outcomes (Students should be able to...)
10	<u>Lecture 17 & 18:</u> Case study 1: Students are expected to have gone through the case study before coming to the class, where discussion will take place		CLO 2: Identify relevant business problems that can be solved through business analytics
11	<u>Lecture 19 & 20:</u> - Predictive analytics - Feature extraction - Classification models, performance metrics - Logistic regression	- Lecture notes - Chapter 10 of Textbook 1	CLO 3: Analyze data through relevant tools to recommend solutions to a variety of business problems
12	<u>Lecture 21 & 22:</u> Visualization of data driven solutions of business problems - Power BI software intro - Data import - Data preprocessing	- Chapter 3 of Textbook 1 - Internet tutorials	CLO 4: Develop data visualizations and dashboards for decision making.
13	<u>Lecture 23 & 24:</u> Data visualization - Data presentation - Graphical visualization - Dashboards - Charts to summarize marketing data - Reports generation from Power BI	- Lecture notes - Internet tutorials	CLO 4: Develop data visualizations and dashboards for decision making.
14	<u>Lecture 25:</u> Data analysis expression - Use of operators - Use of quick measures - Practice of business problems - Application of other languages in Power BI	- Lecture notes - Internet tutorials	CLO 4: Develop data visualizations and dashboards for decision making
	<u>Lecture 26:</u> Case study 2: Students are expected to have gone through the research paper before coming to the class, where discussion will take place.		CLO 2: Identify relevant business problems that can be solved through business analytics.

15	<u>Lecture 27 & 28:</u> Understanding customer analytics • Customer analytics • Customer lifetime value • Association rules • Market Basket Analysis • Clustering and segmentation • Distance and similarity measures • Defining operations analytics	- Lecture notes - Chapter 8 Textbook 1 - Chapter 9 Textbook 1	CLO 3: Analyze data through relevant tools to recommend solutions to a variety of business problems
16	<u>Lecture 29 & 30:</u> Project Presentations Report: Problem identification, analytical tools applied, solution (respective problem) for analytics project, references, figures. Presentation: Content + Comprehensive coverage of topic, Knowledge about the project, Confidence & Preparation, Presentation effort, Interaction with class, Dressing		CLO 3: Analyze data through relevant tools to recommend solutions to a variety of business problems
17	BUFFER WEEK (if required)		
18	<u>FINAL EXAM WEEK</u>		