



**INTERNATIONAL MANAGEMENT INSTITUTE
BHUBANESWAR**

**POST-GRADUATE DIPLOMA IN MANAGEMENT (PGDM)
MARKETING ANALYTICS (MK 603)
CREDIT: 1.5 CREDITS
SESSION DURATION: 60 MINUTES**

TERM: V
ACADEMIC YEAR: 2021-2022
BATCH: PGDM (2020-22)

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Course Introduction:

“In God we trust, everyone else must come with,” so says a very popular phrase among analysts. Indeed, with abundance of data flooding from every possible source and with a rapid evolution of techniques required to analyze this data, a skilled analyst is the most prized entity. If data is the new oil, analyst is the sought-after refinery. This course enables students to attain greater expertise in hands-on execution of cutting-edge analytical techniques. The ultimate goal is to prepare market-ready students who are able to understand the marketing dilemma; study the data; choose the most appropriate one from among a gamut of available analytical techniques; analyze and derive insights out of it; and finally, suggest suitable marketing decisions based on generated insights.

Learning Outcomes:

The following are the learning outcomes of the course:

1. To improve students' ability to view marketing function analytically (L01)
2. To familiarize students with advanced analytical techniques (L02)
3. To enhance students' efficiency in using open-source software R Studio for analytics (L03)
4. To learn to use data for creating effective business strategies (L04)

Course Pedagogy:

The teaching methodology will be an optimum amalgamation of class-room teaching, hands-on experiments and case discussions. A theoretical understanding of the tools will be followed by data-based application of tools and lastly, case-based application.

Course Readings:

Books

1. Shmueli, G., Bruce, P. C., Yahav, I, Patel, N. R., & Lichtendahl Jr., K. C. (2018). *Data Mining for Business Analytics: Concepts, Techniques, and Applications in R*. John Wiley and Sons. [SHMUELI]
2. Winston, W. L. (2014). *Marketing Analytics: Data-driven Techniques with Microsoft Excel*. John Wiley & Sons. [WINSTON]
3. Linoff, G. S., & Berry, M. J. (2011). *Data Mining Techniques: For Marketing, Sales, and Customer Relationship Management*. John Wiley & Sons. [LINOFF]
4. Kumar, V., & Reinartz, W. (2018). *Customer Relationship Management: Concept, Strategy, and Tools*. Springer. [KR]
5. Lander, J. P. (2014). *R for Everyone: Advanced Analytics and Graphics*. Pearson Education.

6. Venkatesan, R., Farris, P., & Wilcox, R. T. (2014). *Cutting-edge marketing analytics: Real world cases and data sets for hands on learning*. Pearson Education.
7. Sorger, S. (2013). *Marketing Analytics: Strategic Models and Metrics*. Admiral Press.

Additional sources:

1. www.rdocumentation.org
2. www.rbloggers.org
3. www.geeksforgeeks.org
4. www.stackoverflow.com

Analytical tool: R-Studio

Course Evaluation criteria:

Component	Learning Outcomes	Weight
Class participation	LO-1, LO-2, LO-3, LO-4	10%
Quiz	LO-1, LO-2	20%
Project	LO-1, LO-2, LO-3, LO-4	30%
End-term	LO-1, LO-2, LO-3, LO-4	40%
Total		100%

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Session Plan

#	Topic	Learning Outcomes	Reading
1.	Introduction to R <ul style="list-style-type: none"> ▪ Importing data ▪ Univariate and bivariate data analysis 	LO - 1 LO - 2 LO - 3 LO - 4	SHMUELI – Ch. 2 LANDER – Ch. 1 – 6, 8, 9, 11, 15 <u>Reading:</u> https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/the-age-of-analytics-competing-in-a-data-driven-world https://www.r-bloggers.com/2015/12/how-to-write-the-first-for-loop-in-r/ <u>Data:</u> Nike
2.	Data visualization using ggplot2 <ul style="list-style-type: none"> ▪ Histogram ▪ Scatterplot ▪ Line graphs ▪ Facets ▪ Heatmaps 	LO - 1 LO - 2 LO - 3 LO - 4	SHMUELI – Ch. 3 LANDER – Ch. 7 <u>Reading:</u> https://www.reddit.com/r/dataisbeautiful/ <u>Data:</u> Nike; Diamonds

3-6.	What do customers want? Customer management using Logistic Regression (LR) <ul style="list-style-type: none"> ▪ Dummy variable ▪ Data partitioning ▪ Oversampling ▪ Running LR ▪ Model validation 	LO - 1 LO - 2 LO - 3 LO - 4	LINOFF - Ch. 8 SHMUELI - Ch. 10 WINSTON - Ch. 17 LANDER - Ch. 17 Reading: https://mapr.com/blog/how-use-data-science-and-machine-learning-revolutionize-360-customer-views/ Data: Bank; RFM data
7-8.	Sales forecasting and predictive modelling using artificial neural network (ANN)	LO - 1 LO - 2 LO - 3 LO - 4	LINOFF - Ch. 8 SHMUELI - Ch. 11 WINSTON - Ch. 15 Reading: https://blog.arcbees.com/2016/12/29/a-non-technical-guide-to-understanding-machine-learning/ Data: Housing
9-10.	Knowing when to worry: Understanding customer churn using survival analysis	LO - 1 LO - 2 LO - 3 LO - 4	LINOFF - Ch. 10 LANDER - Ch. 17 Reading: Data: ovarian; Telco
11-14.	Listening to customers: Text mining using sentiment analysis	LO - 1 LO - 2 LO - 3 LO - 4	LINOFF - Ch. 21 SHMUELI - Ch. 20 WINSTON - Ch. 45 Reading: Alaparthy, S. & Mishra, M. (2021). BERT: a sentiment analysis odyssey. <i>Journal of Marketing Analytics</i> , 9, 118-126 (2021). https://doi.org/10.1057/s41270-021-00109-8 Data: JMRTitles
15.	Combining methods: Ensembles and uplift modeling	LO - 1 LO - 2 LO - 3 LO - 4	SHMUELI - Ch. 13 Reading: https://link.springer.com/article/10.1007/s10618-014-0383-9