UNIVERSITY of TECHNOLOGY, MAURITIUS

School of Innovative Technologies and Engineering

Department of Applied Mathematical Sciences

BSc (Hons) DATA SCIENCE WITH INTERACTIVE MARKETING

PROGRAMME DOCUMENT

VERSION 2.0

BDSIM v 2.0

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University of Technology, Mauritius

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A. Programme Information

In this digital and increasingly automated era, much data is produced through customer behavior and preferences, social networking sites, and machinery amongst others. As compared to structured data, generally accessed through a relational database, big data- as the concept is often coined, comes in huge volumes (Terabytes or Exabytes), variety and at customarily frequencies. This makes the conventional statistical analysis of the data impractical. Data science with Interactive Marketing deals with the conversion of big data into intelligence so that well-advised decisions and hands-on digital marketing plans may be established. The phenomena of big data is ever growing and studies report that hundreds of thousands of data experts will be required in the foreseeable three to four years.

B. Programme Aims

The BSc (Hons) Data Science with Interactive Marketing programme is designed to offer deep rooted mathematical/statistical and analytical/computational skills to students, in view of empowering them with the necessary competencies required for volumetric data analysis in the context of digital marketing. The programme has been designed with a hands-on approach so that the skills and attributes inculcated may easily and practically be transferable to the industry.

C. Programme Objectives

After successful completion of the programme, the graduates should be able to

- demonstrate appropriate knowledge and analytical techniques to analyze big data;
- make effective and efficient use of open source platforms such as Apache Hadoop;
- display skills in using state-of-the-art software;
- show algorithm design and software engineering skills;
- refurnish a business puzzle into an analytics task;
- understand digital marketing communications;
- manage digital customer experience;
- skillfully employ social media as a profitability pathway.

D. **General Entry Requirements**

As per UTM's Admission Regulations.

E. **Programme Entry Requirements**

'A'-level in Mathematics or Statistics.

F. **Programme Mode and Duration**

Full Time: Minimum 3 Years, Maximum 6 Years (Minimum 6 Semesters, Maximum 12 Semesters)

Part Time: Minimum $4\frac{1}{2}$ Years, Maximum $7\frac{1}{2}$ Years (Minimum 9 Semesters, Maximum 15 Semesters)

G. **Teaching and Learning Strategies**

- Lectures, Tutorials, Practical Laboratory Sessions and Self-Development Activities;
- Class Tests, Assignments and Dissertation/Projects;
- Structured Discussions and Self-Directed Study;
- Workshops and Seminars;
- Case Study of real-world problems;
- Work Placement

H. **Student Support and Guidance**

Each cohort of the programme is allocated a Programme Coordinator who acts as a liaison between the students and School Management and provides support for academic management of the programme.

I. **Attendance Requirements**

As per UTM's Regulations and Policy.

J. **Credit System**

This programme is aligned with the European Credit and Transfer System (ECTS).

One module will carry 150 hours of learning comprising of 45 hours of delivery which could be any combination of face to face, blended, online, seminar, workshop or joint session. The remaining 105 hours will cover self-learning, self-study, guest lecture etc.

For the award of

- a Certificate, a minimum of 60 credits are required;
- a Diploma, a minimum of 120 credits are required;
- an Honours Degree, 180 credits are required.

K. Student Progress and Assessment

The programme is delivered mainly through lectures (L), tutorials (T), and practical (P) laboratory sessions. Students are expected to be as autonomous as possible in their self-study and self-development (SD) activities may include reading, writing reports, delivering presentations, taking part in quizzes, and case-studying, amongst others. Each module carries 100 marks and unless otherwise specified will be assessed as follows:

- written and/or practical examination, and a continuous assessment carrying 30% - 40% of total marks;
- continuous assessment can be based on a combination of assignments, field study, workshops, practical and class tests;
- Modules 'Programming for Data Science I', 'Spreadsheet Modelling for Business Intelligence', 'Marketing Management', 'Programming for Data Science II', 'Life Skills and Good Practices', 'Web Data Mining and Business Intelligence', 'User-Centered Web Design ', 'Digital and Social Media Management', 'Data Warehousing', 'Strategic Online Marketing' and 'Data Science Tools' will be assessed by 100% coursework. Coursework must consist of at least one class test and one assignment.
- Modules 'Communication and Team Working' will be assessed by 100% coursework. The coursework must consist of at least two assessments.

Module grading structure:

Grade	Marks *x* (%)	Remarks
A	$70 \leq x \leq 100$	Excellent
B	$60 \leq x < 70$	Very Good
C	$50 \leq x < 60$	Good
D	$40 \leq x < 50$	Satisfactory
F	$x < 40$	Referred

L. Evaluation of Performance

1. The % mark at Level 1 contributes a 20% weighting towards the degree classification.
2. The % mark at Level 2 contributes a 30% weighting towards the degree classification.
3. The % mark at Level 3 contributes a 50% weighting towards the degree classification.

M. Award Classification

Overall weighted mark (y) in %	*Classification*
$70 \leq y \leq 100$	1st Class with Honours
$60 \leq y < 70$	2nd Class 1st Division with Honours
$50 \leq y < 60$	2nd Class 2nd Division with Honours
$45 \leq y < 50$	3rd Class with Honours
$40 \leq y < 45$	Pass Degree
$y < 40$	No Award

N. Programme Organisation and Management

Programme Director: Dr Aslam Aly El-Faïdal SAIB

Contact Details:

- Phone Number: (230) 207 5250
- Email: asaib@umail.utm.ac.mu

O. BSc (Hons) DATA SCIENCE WITH INTERACTIVE MARKETING – Full-Time (Version 2.0)

YEAR 1 (Level 1)

Semester 1				Semester 2			
Code	**Modules**	**Hrs/Wk L/T/P + SD**	**Credits**	**Code**	**Modules**	**Hrs/Wk L/T/P + SD**	**Credits**
STAT 1220C	Applied Probability and Statistics I	**3 + 7**	6	STAT 1221C	Applied Probability and Statistics II	**3 + 7**	6
MATH 1344C	Linear Algebra and Matrix Theory	**3 + 7**	6	ISM 1128C	Information Management for Businesses	**3 + 7**	6
MATH 1345C	Mathematical Reasoning	**3 + 7**	6	MKTG 1102C	Marketing Management	**3 + 7**	6
COMM 1118C	Communication and Team Working	**3 + 7**	6	STAT 1341C	Quantitative Methods for Marketing	**3 + 7**	6
COMP 1112C	Programming for Data Science I	**3 + 7**	6	COMP 1113C	Spreadsheet Modelling for Business Intelligence	**3 + 7**	6

YEAR 2 (Level 2)

Semester 1				Semester 2			
Code	**Modules**	**Hrs/Wk L/T/P + SD**	**Credits**	**Code**	**Modules**	**Hrs/Wk L/T/P + SD**	**Credits**
DBT 1114C	Database Modelling	**3 + 7**	6	WAT 2130C	User-Centered Web design	**3 + 7**	6
MATH 2347C	Web Data Mining and Business Intelligence	**3 + 7**	6	STAT 2343C	Multivariate Statistical Modelling	**3 + 7**	6
MKTG 2103C	Digital and Social media Management	**3 + 7**	6	MATH 2346C	Computational Linear Algebra	**3 + 7**	6
COMP 1114C	Programming for Data Science II	**3 + 7**	6	MATH 2325C	Numerical Analysis	**3 + 7**	6
UTM 2101	Life Skills and Good Practices	**3 + 7**	6				
PROJ 2119C	Work Placement (in Semester Break)						6

YEAR 3 (Level 3)

Semester 1				Semester 2			
Code	**Modules**	**Hrs/Wk L/T/P + SD**	**Credits**	**Code**	**Modules**	**Hrs/Wk L/T/P + SD**	**Credits**
MATH 3348C	Optimization Techniques	**3 + 7**	6	MKTG 3104C	Strategic Online Marketing	**3 + 7**	6
STAT 2342C	Supervised Learning	**3 + 7**	6	MATH 3349C	Computational Intelligence	**3 + 7**	6
STAT 3344C	Time Series Modelling	**3 + 7**	6	COMP 3115C	Data Science Tools	**3 + 7**	6
DBT 3115C	Data Warehousing	**3 + 7**	6	STAT 3345C	Applied Stochastic Processes	**3 + 7**	6
PROJ 3110C	Project						12

P. BSc (Hons) DATA SCIENCE WITH INTERACTIVE MARKETING – Part-Time (Version 2.0)

YEAR 1

→ Start of Level 1

Semester 1

Code	Modules	Hrs/Wk L/T/P + SD	Credits
STAT 1220C	Applied Probability and Statistics I	**3 + 7**	6
MATH 1344C	Linear Algebra and Matrix Theory	**3 + 7**	6
COMP 1112C	Programming for Data Science I	**3 + 7**	6
COMM 1118C	Communication and Team Working	**3 + 7**	6

Semester 2

Code	Modules	Hrs/Wk L/T/P + SD	Credits
STAT 1221C	Applied Probability and Statistics II	**3 + 7**	6
ISM 1128C	Information Management for Businesses	**3 + 7**	6
MATH 1345C	Mathematical Reasoning	**3 + 7**	6

YEAR 2

→ Start of Level 2

Semester 1

Code	Modules	Hrs/Wk L/T/P + SD	Credits
STAT 1341C	Quantitative Methods for Marketing	**3 + 7**	6
COMP 1113C	Spreadsheet Modelling for Business Intelligence	**3 + 7**	6
MKTG 1102C	Marketing Management	**3 + 7**	6

End of Level 1 →

Semester 2

Code	Modules	Hrs/Wk L/T/P + SD	Credits
DBT 1114C	Database Modelling	**3 + 7**	6
MATH 2347C	Web Data Mining and Business Intelligence	**3 + 7**	6
MKTG 2103C	Digital and Social Media Management	**3 + 7**	6

YEAR 3

Semester 1

Code	Modules	Hrs/Wk L/T/P + SD	Credits
UTM 2101	Life Skills and Good Practices	**3 + 7**	6
WAT 2103C	User-Centered Web Design	**3 + 7**	6
COMP 1114C	Programming for Data Science II	**3 + 7**	6
PROJ 2119C	Work Placement (In Semester Break)		6

Semester 2

Code	Modules	Hrs/Wk L/T/P + SD	Credits
MATH 2325C	Numerical Analysis	**3 + 7**	6
MATH 2346C	Computational Linear Algebra	**3 + 7**	6
STAT 2343C	Multivariate Statistical Modelling	**3 + 7**	6

End of Level 2 →

YEAR 4

→ Start of Level 3

Semester 1

Code	Modules	Hrs/Wk L/T/P + SD	Credits
MATH 3348C	Optimization Techniques	**3 + 7**	6
STAT 3344C	Time Series Modelling	**3 + 7**	6
STAT 2342C	Supervised Learning	**3 + 7**	6
DBT 3115C	Data Warehousing	**3 + 7**	6

Semester 2

Code	Modules	Hrs/Wk L/T/P + SD	Credits
MKTG 3104C	Strategic Online Marketing	**3 + 7**	6
MATH 3349C	Computational Intelligence	**3 + 7**	6
PROJ 3110C	Project	-	-

YEAR 5			
Semester 1			
Code	**Modules**	**Hrs/Wk L/T/P + SD**	**Credits**
STAT 3345C	Applied Stochastic Processes	**3 + 7**	6
COMP 3115C	Data Science Tools	**3 + 7**	6
PROJ 3110C	Project	-	12
			End of Level 3 →