Programme Specification

1	**Awarding body**	University of London
2	**Teaching Institution**	**Birkbeck College**
3	**Programme Title(s)**	**MSc Data Science**
4	**Programme Code(s)**	TMSDATSC_C
5	**UCAS code**	NA
6	**Home Department**	Computer Science and Information Systems
7	**Exit Award(s)**	PG Dip Data Science, PG Cert Data Science
8	**Duration of Study** (number of years)	1 year (full-time) 2 years (part-time)

9	**Mode of Study**	FT	**X**	PT	X	DL	

10	**Level of Award (FHEQ)**	7
11	**Other teaching depts or institution**	N/A
12	**Professional, Statutory Regulatory Body(PSRB) details**	N/A
13	**QAA Benchmark Statement**	Computing

14	**Programme Rationale & Aims**
	The programme provides an intensive course in data science and software engineering for graduates of subjects other than Computer Science.
	As well as gaining a broad knowledge of data science and software engineering, students acquire practical problem-solving and analytical skills, while also having the opportunity to investigate certain areas of current research more deeply.
	For students who are new to the subject, the programme provides a foundation for a career in IT as a data scientist or analyst; for those already working in IT, it provides an opportunity to strengthen and update their knowledge and skills in the areas of data science and software engineering while obtaining a formal qualification.
	Holders of the MSc will have demonstrated a systematic understanding and a critical awareness, much of it at the forefront of the discipline, a comprehensive and practical understanding of applicable techniques, originality in the application of knowledge, the ability to evaluate current research and methodologies, and the independent learning ability required for continuing professional development.

15	**Entry Criteria**
	A good 2nd class honours degree from a British university, or equivalent, in any subject other than single-honours Computer Science, along with demonstrated aptitude as tested during the application process.

	Applicants with less than the required level of academic qualification may be considered if they have significant experience in the IT industry.

16	**Learning Outcomes**
	Subject Specific: • a knowledge of programming (S1), • mathematical and algorithmic foundations of computing (S2), • information systems design and social, legal and professional implications (S3), • data and software engineering (S4), • computer architecture and operating systems (S5), • knowledge of data science tools, techniques and applications (S6), • an appreciation of research topics related to data science (S7). Intellectual: • the ability to develop an algorithm to carry out a specified task and to convert this into an executable program (I1), • to debug a program (I2), • to develop designs for information systems (I3), • an appreciation of the social and legal implications of the use of computers (I4), • the ability to analyse data using appropriate methods (I5), • to plan and carry out a project with a focus on data science spanning several months (I6), • to perform abstract thinking and to exhibit abstraction skills (I7). Practical: • the ability to write programs in appropriate programming languages (P1), • to create and document a design using an appropriate modelling language (P2), • to use a coherent information system development process (P3) • to use tools to analyse data (P4). Personal and Social: • to demonstrate self-direction and originality in tackling and solving problems (PS1), • to act autonomously in planning and implementing tasks at a professional level (PS2), • to conduct a critical appraisal of material synthesised from research papers (PS3), • to communicate conclusions clearly to specialist and non-specialist audiences (PS4), • to deal with complex issues systematically and creatively (PS5), • to advance further their knowledge, skills and understanding (PS6).

17	**Learning, teaching and assessment methods**
	Formal lectures are the principal teaching method, but these frequently incorporate practical sessions, for example in programming, and also group exercises carried out in class. There is a large element of practical coursework which students carry out in their own time; some of these coursework assignments are carried out in groups.

Each student also undertakes an individual project in data science (including background research) which is supervised by a member of staff. The project provides an opportunity for students to investigate in depth an aspect of data science that particularly interests them.

Assessment is by the coursework assignments, written examinations and the project proposal and final report.

The programme is taught in 8 half-modules (15 credits each) and 1 double module (the MSc project, 60 credits).

18	**Programme Description**

This conversion degree is designed for graduates who are new to computer science.

This intensive programme in data science and computing provides an excellent grounding for working as a data scientist or analyst in industry.

As well as gaining a broad knowledge of computing, you will acquire programming and data analysis skills and have the opportunity to investigate certain areas of current research more deeply.

19	**Programme Structure**

Part Time programme – 2 years

Year 1

Level	Module Code	Module Title	Credits	Status*
7	BUCI063H7	Principles of Programming I	15	Compulsory
7	BUCI065H7	Programming with Data	15	Compulsory
7	COIY060H7	Computer Systems	15	Compulsory
7	COIY058H7	Fundamentals of Computing	15	Compulsory
7	BUCI042H7	Big Data Analytics using R	15	Compulsory

Year 2

Level	Module Code	Module Title	Credits	Status*
7	BUCI057H7	Data Science Techniques and Applications	15	Compulsory
7	BUCI058D7	Data Science Project	60	Core
7		Two options from the following list	30	Optional

Optional Modules List

Level	Module Code	Module Title	Credits	Status*
7	BUCI040H7	Information and Network Security	15	Optional
7	BUCI029H7	Cloud Computing	15	Optional
7	COIY059H7	Information Systems	15	Optional
7	BUCI077H7	Applied Machine Learning	15	Optional
7	COIY064H7	Natural Language Processing and Information Retrieval	15	Optional
7	COIY065H7	Machine Learning	15	Optional
7	BUCI064H7	Principles of Programming II	15	Optional
7	COIY025H7	Advances in Data Management	15	Optional
7	COIY053H7	Semantic Technologies	15	Optional

Full Time programme – 1 year				
Year 1				
Level	**Module Code**	**Module Title**	**Credits**	**Status***
7	BUCI063H7	Principles of Programming I	15	Compulsory
7	BUCI065H7	Programming with Data	15	Compulsory
7	COIY060H7	Computer Systems	15	Compulsory
7	COIY058H7	Fundamentals of Computing	15	Compulsory
7	BUCI042H7	Big Data Analytics using R	15	Compulsory
7	BUCI057H7	Data Science Techniques and Applications	15	Compulsory
7	BUCI058D7	Data Science Project	60	Core
7		Two options from the following list	30	Optional
Optional Modules List				
7	BUCI040H7	Information and Network Security	15	Optional
7	BUCI029H7	Cloud Computing	15	Optional
7	COIY059H7	Information Systems	15	Optional
7	BUCI077H7	Applied Machine Learning	15	Optional
7	COIY064H7	Natural Language Processing and Information Retrieval	15	Optional
7	COIY065H7	Machine Learning	15	Optional
7	BUCI064H7	Principles of Programming II	15	Optional
7	COIY025H7	Advances in Data Management	15	Optional
7	COIY053H7	Semantic Technologies	15	Optional

Status*

CORE – Module must be taken and passed by student; COMPULSORY – Module must be taken, mark can be reviewed at sub-exam board; OPTIONAL – Student can choose to take this module

20	**Additional Programme Information**
	First year part-time students must normally pass at least 45 credits in order to proceed to the second year of study.
	The project is undertaken during the Spring (project proposal) and Summer (project report) terms (of the second year for part-time students), with the project report submitted in September. The project report is examined in the Autumn.

21	**Programme Director**	Alessandro Provetti
22	**Start Date** *(term/year)*	October 2016
23	**Date approved by TQEC**	Summer 2016
24	**Date approved by Academic Board**	Summer 2016
25	**Date(s) updated/amended**	18 November 2021