Programme Specification for Postgraduate Programme Leading to: MSc Statistics with Data Analytics

Applicable for all postgraduate students starting in 2018

Version No.	Date	Notes – Q&S USE ONLY	AO
2018.19 v1	16 April 2018	Programme specification updated for 2018/19 entrants.	JP

Postgraduate Taught Programme	
1. Awarding institution	Brunel University London
2. Teaching institution(s)	Brunel University London
3. Home college/department/division	College of Engineering, Design and Physical Sciences/ Department of Mathematics
4. Contributing college/department/ division/associated institution	Department of Computer Sciences
5. Programme accredited by	N/A
6. Final award(s) and FHEQ Level of Award	MSc Statistics with Data Analytics (FHEQ L7)
7. Programme title	MSc Statistics with Data Analytics
8. Programme type	N/A
9. Normal length of programme (in months) for each mode of study	FT 12 months (equivalent to 52 weeks) PT 24 months (equivalent to 2 years from the 1st September)
10. Maximum period of registration for each mode of study	Normal or standard duration plus 2 years
11. Variation(s) to September start	N/A
12. Modes of study	Full time/Part time
13. Modes of delivery	Standard
14. Intermediate awards and titles and FHEQ Level of Award	PGDip Statistics - FHEQ Level 7 PGCert Statistics - FHEQ Level 7
15. UCAS Code	
16. JACS Code	G300 (45%), G340 (20%), G310 (20%), I200 (15%)
17. Route Code	G300PSTATDAT
18. Relevant subject benchmark statements and other external and internal reference points used to inform programme design	QAA UK Quality Code for Higher Education which includes the English Framework for Higher Education Qualifications within Part A on Setting and Maintaining Academic Standards QAA Subject Benchmark Statement (Mathematics, Statistics and Operational Research) Brunel University 2030 Brunel Placement Learning Policy, as published under the 'Placements' section of the 'Managing Higher Education Provision with Others' page.
19. Admission Requirements	Details of PGT entry requirements are provided on the University's and College website. Levels of English for non-native speakers are outlined on Brunel International's language requirements pages.
20. Other relevant information (e.g. study abroad, additional information on placements)	N/A
21. Programme regulations not specified in Senate Regulation 3. Any departure from regulations specified in Senate Regulation 3 must be stated here and approved by Senate.	N/A
22. Further information about the programme is available from the College website.	https://www.brunel.ac.uk/cedps
23. EDUCATIONAL AIMS OF THE PROGRAMME	

Statistics is the study of the collection, analysis, interpretation, presentation, and organization of data. The aim of the MSc Statistics and Data Analytics is to produce graduates that:

- are equipped with a range of advanced statistical methods and the associated computational skills for handling large quantities of unstructured data;
- have developed a critical awareness of the underlying needs of industry and commerce through relevant case studies;
- are able to analyse real-world data and to communicate the output of sophisticated statistical models in order to inform decision making processes;
- have the necessary computational skills to build and analyse simple/appropriate solutions using statistical Big Data technologies.

24. PROGRAMME AND INTERMEDIATE LEARNING OUTCOMES

The programme provides opportunities for students to develop and demonstrate knowledge and understanding (K) cognitive (thinking) skills (C) and other skills and attributes (S) in the following areas:

Level	Category (K = knowledge and understanding, C = cognitive (thinking) skills, S = other skills and attributes)	**Learning Outcome**	**Masters Award Only**	**Associated Assessment Blocks Code(s)**	**Associated Study Blocks Code(s)**	**Associated Modular Blocks Code(s)**
5						
5	K **& C**	Demonstrate knowledge and a critical understanding of modern regression models and classification methods.				MA5628 MA5630 MA5632 MA5631
5	K & C	Demonstrate a critical understanding of the challenges and issues arising from taking heterogeneous data at volume and scale and to be able to use modern statistical skills and tools to deal with massive dat.				CS5606 CS5608 MA5633 MA5628 MA5632
5	K **& C**	Demonstrate knowledge and a critical understanding of further statistical methods; for example Bayesian inference, network methods and modern Lasso theory.				MA5628 MA5630 MA5633 MA5631
5	K & S	Evaluate critically the effectiveness of statistical analysis methods.				MA5627 MA5628 MA5629 MA5630 MA5632 MA5631
5	**C** & S	Evaluate the effectiveness of the application of statistical methods to engineering, social and business data.				MA5627 MA5629 MA5633 MA5632
5	S	To be able to conduct, report and evaluate a significant programme of research related to the problems and challenges of unstructured data.				MA5627 MA5633

Learning/teaching strategies and methods to enable learning outcomes to be achieved, including formative assessments

In relation to the learning outcomes above:

- Knowledge and understanding in the theoretical areas indicated above will be acquired through a combination of lectures, seminars, and self-study (and, where applicable, individual projects).
- In the lectures, statistical theory and important concepts will be illustrated and explained; such concepts include both the relevant background in mathematical computing and probability.
- Seminars and group tutorials are used to apply acquired knowledge via exercises and/or to develop critical insight and reflect on the taught material.
- Practical laboratory sessions are used to demonstrate and apply key approaches, tools and techniques etc. Modern computing statistical languages such as R based coding and algorithms will be demonstrated.

Directed private study is used to (a) supplement and consolidate the points above and (b) broaden individual knowledge and understanding of the subject matter.

Summative assessment strategies and methods to enable learning outcomes to be demonstrated.

The assessment of all learning outcomes above is achieved by a balance of coursework and examinations (as detailed in the individual module specifications). Assessments range from written reports/essays, group work, presentations through to conceptual/statistical modelling and programming exercises, according to the demands of particular modular blocks. Additionally, class tests are used to assess a range of knowledge, including a range of specific technical subjects.

25. Programme Structure, progression and award requirements

Programme structures and features: levels, assessment blocks, credit and progression and award requirements

- **Compulsory block:** one which all students registered for the award are required to take as part of their programme of study. These will be listed in the left hand column;
- **Optional block:** one which students choose from an 'option range'. These will be listed in the right hand column**;**
- A **core assessment** is an assessment identified within an assessment block or modular block (either compulsory or optional) which must be passed (at grade C- or better) in order to be eligible to progress and to be eligible for the final award. All core assessments must be specified on the programme specification next to the appropriate assessment or modular block:

  Where students are expected to pass the block at C- or better, but not necessarily all elements, then the block itself is core.
  e.g. AB5500 Project (40)
  Core: Block

  Where only some elements of assessments are required to be passed at C- or better, these will be identified by listing each element that is core
  e.g. ABXXX1 Title (XX credits)
  Core: 1 & 4

  Where students are expected to pass all assessments in a block then this will be identified. By setting the assessment this way, students are also required to pass the block by default. This will be identified thus:
  e.g. ABXXXX Title (XX credits)
  Core: All, Block

- A **non-core assessment** does not have to be passed at grade C- or better, but must D- or better in order to be eligible for the final award.

Level 5

Compulsory modular block codes, titles and credit	Optional modular block codes, titles and credits
Term 1: CS5606 Quantitative Data Analysis (15 credits) MA5627 Research Methods and Case Studies (15 credits) MA5632 Computer Intensive Statistical Methods (15 credits) MA5628 Modern Regression and Classification (15 credits) **Term 2:** CS5603 Data Visualisation (15 credits) CS5608 Big Data Analytics (15 credits) For 2018-19, the following two modular blocks are compulsory MA5629 Time Series Modelling (15 credits) MA5630 Network Models (15 credits) **Over the summer:** MA5633 Dissertation (60 credits) Core: Block Part-Time Curriculum: **Year 1** Term 1: MA5632, CS5606 Term 2: CS5603, CS5608 **Year 2** Term 1: MA5627, MA5628 Term 2: MA5629, MA5630, MA5633 Dissertation	**From 2019-20, 30 credits in Term 2 will be optional** Any two modular blocks from: MA5629 Time Series Modelling (15 credits) MA5630 Network Models (15 credits) ***MA5631 Bayesian Statistics (15 credits) (will not run in 2018-2019)***

Level 5 Progression and Award Requirements

As per Senate Regulation 3

PGDip may not be awarded by substitution of the dissertation (MA5633) for modular/assessment blocks in the taught part of the programme.

Please note: this specification provides a concise summary of the main features of the programme and the learning outcomes that a student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods can be found in the modular block, assessment and study block outlines and other programme and block information. The accuracy of the information contained in this document is reviewed by the University from time to time and whenever a modification occurs.