MSc Applied Statistics

Programme Specification

1. Programme title	MSc Applied Statistics
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Details of accreditation by professional/statutory/regulatory body	
5. Final qualification(s) available	MSc Applied Statistics PGDip Applied Statistics
6. Year of validation / last review Year of amendment	2020/21 2021/22
7. Language of study	English
8. Mode of study	Full-time, Part-time Delivery method: On-campus / blended

9. Criteria for admission to the programme

An Honours degree normally classified 2.2 or above, or equivalent, with a significant mathematical element in its curriculum.

Successful applicants must have competence in English language. For international applicants whose first language is not English the requirement is that they have IELTS 6.5 (with minimum 6.0 in all four components) or TOEFL internet based 87 (with at least 21 in listening & writing, 22 in speaking and 23 in reading).
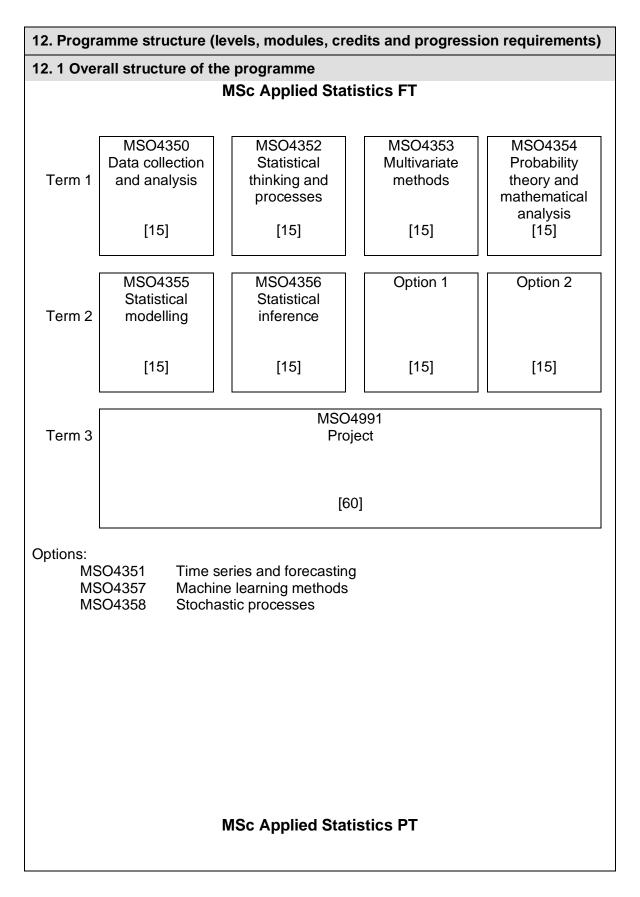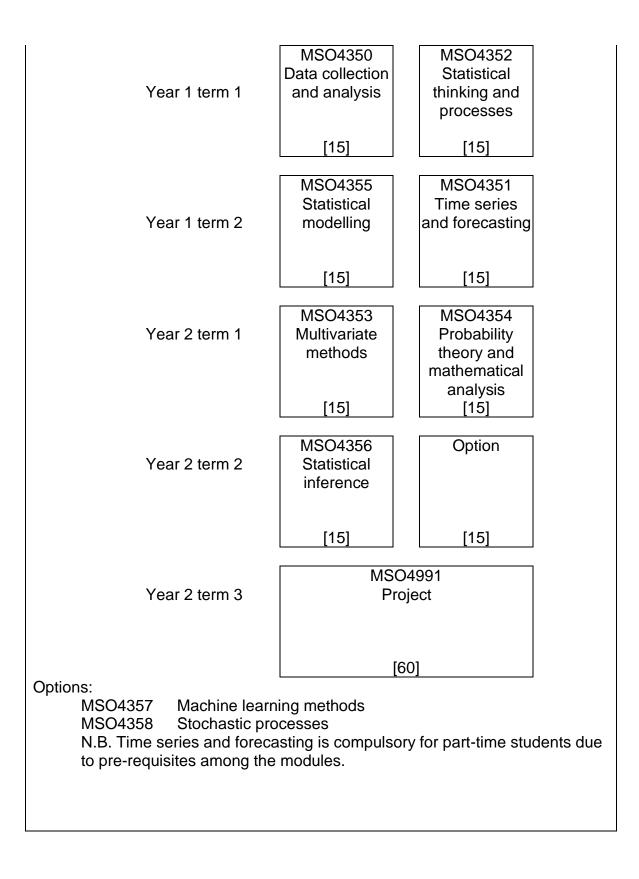
10. Aims of the programme

The programme aims to:

- develop awareness and understanding, at an advanced level, of mathematical and statistical concepts and techniques in order to apply them to a variety of data

sets including cross-sectional, time-series, longitudinal, and multi-level;

- develop an advanced knowledge of probability, distributions and statistical inference, statistical modelling and analysis in order to solve problems in engineering, computing and communications sciences, natural and environmental sciences, health and social sciences, economics and finance;
- develop the ability to work independently on highly technical problems requiring statistical techniques and to communicate the results to a wide range of audiences.

11. Programme outcomes*	
A. Knowledge and understanding On completion of this programme the successful student will have knowledge and understanding of: A1 advanced techniques in statistics; A2 various types of data; A3 theories and methods for modelling and analysing complex data sets and their relative merits; A4 core concepts and theories of probability; A5 core concepts and theories of advanced techniques in statistical inference; A6 research methods and techniques.	**Teaching/learning methods** Students gain knowledge and understanding through a combination of lectures, directed reading and guided independent study, including use of online resources, case studies, guest speakers, formative assessment, coursework, critical reflection, facilitated discussion, workshops, seminars, labs and the project. **Assessment methods** Students' knowledge and understanding are assessed by individual coursework and the project.
B. Skills On completion of this programme the successful student will be able to: B1 use and evaluate a variety of statistical methods for analysing and modelling complex data sets; B2 explain and critically compare competing methods for modelling data; B3 formulate practical applied problems and identify, use and justify suitable advanced methods or techniques in statistics to solve them; B4 obtain and critique data from a range of sources including electronic databases; B5 analyse data using programming and/or computer packages; B6 effectively organise, structure and produce a project at an advanced level	**Teaching/learning methods** Students learn cognitive and practical skills through seminar discussion and debate, workshops, individual work, and independent study including the use of online resources supported by guidance from tutors. **Assessment methods** Students' cognitive and practical skills are assessed by individual coursework, and by the project

12. Programme structure (levels, modules, credits and progression requirements)

12. 1 Overall structure of the programme

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Term 1	MSO4350 Data collection and analysis [15]	MSO4352 Statistical thinking and processes [15]	MSO4353 Multivariate methods [15]	MSO4354 Probability theory and mathematical analysis [15]
Term 2	MSO4355 Statistical modelling [15]	MSO4356 Statistical inference [15]	Option 1 [15]	Option 2 [15]

Term 3	MSO4991 Project [60]

Options:
MSO4351   Time series and forecasting
MSO4357   Machine learning methods
MSO4358   Stochastic processes

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Year 1 term 1	MSO4350 Data collection and analysis [15]	MSO4352 Statistical thinking and processes [15]
Year 1 term 2	MSO4355 Statistical modelling [15]	MSO4351 Time series and forecasting [15]
Year 2 term 1	MSO4353 Multivariate methods [15]	MSO4354 Probability theory and mathematical analysis [15]
Year 2 term 2	MSO4356 Statistical inference [15]	Option [15]
Year 2 term 3	MSO4991 Project [60]	

Options:
    MSO4357   Machine learning methods
    MSO4358   Stochastic processes
    N.B. Time series and forecasting is compulsory for part-time students due to pre-requisites among the modules.

12.2 Levels and modules		
Level 7		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
Students must take all of the following: MSO4350 MSO4352 MSO4353 MSO4354 MSO4355 MSO4356 MSO4991 MSO4351 (for PT students only)	FT Students must also choose two from the following: MSO4351 MSO4357 MSO4358 PT Students must also choose one from the following: MSO4357 MSO4358	Students must pass 120 credits to progress to the project (MSO4991). Students who pass 120 credits may exit with a PGDip Applied Statistics

12.3 Non-compensatable modules	
Module level	**Module code**
7	MSO4991

13. Information about assessment regulations

Middlesex University Assessment Regulations apply to this programme, without exception.

14. Placement opportunities, requirements and support

N/A

15. Future careers / progression

Graduates of the programme will be equipped as a statistician and a data analyst for careers in engineering, computing and communications sciences, natural and environmental sciences, health and social sciences, economics and finance.

16. Particular support for learning (if applicable)

- Specialise software and database resources
- Induction and orientation programme
- English Language Support
- Access to student counsellors
- Virtual Learning Environment

17. JACS code (or other relevant coding system)	G310
18. Relevant QAA subject benchmark group(s)	Mathematics, Statistics and Operational Research

19. Reference points

- QAA Guidelines for programme specifications
- QAA Qualifications Framework
- Middlesex University Regulations
- Middlesex University Learning Framework – Programme Design Guidance, 2012

20. Other information

Please note programme specifications provide a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if s/he takes full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the rest of your programme handbook and the university regulations.

Curriculum map for *MSc Applied Statistics*

This section shows the highest level at which programme outcomes are to be achieved by all graduates, and maps programme learning outcomes against the modules in which they are assessed.

Programme learning outcomes

Knowledge and understanding	
A1	advanced techniques in statistics
A2	various types of data;
A3	theories and methods for modelling and analysing complex data sets and their relative merits
A4	core concepts and theories of probability
A5	core concepts and theories of advanced techniques in statistical inference
A6	research methods and techniques
Skills	
B1	use and evaluate a variety of statistical methods for analysing and modelling complex data sets;
B2	explain and critically compare competing methods for modelling data
B3	formulate practical applied problems and identify, use and justify suitable advanced methods or techniques in statistics to solve them
B4	obtain and critique data from a range of sources including electronic databases
B5	analyse data using programming and/or computer packages

B6	Effectively organise, structure and produce a project at an advanced level

Programme outcomes												
A1	A2	A3	A4	A5	A6		B1	B2	B3	B4	B5	B6
Highest level achieved by all graduates												
7	7	7	7	7	7		7	7	7	7	7	7

Module Title	Module Code by Level	A1	A2	A3	A4	A5	A6		B1	B2	B3	B4	B5	B6
Data collection and analysis	MSO4350		✓				✓					✓	✓	
Statistical thinking and processes	MSO4352		✓				✓				✓	✓	✓	
Multivariate methods	MSO4353		✓						✓				✓	
Probability theory and mathematical analysis	MSO4354				✓									
Statistical modelling	MSO4355	✓	✓	✓					✓	✓	✓		✓	
Statistical inference	MSO4356					✓								
Project	MSO4991	✓					✓							✓
Optional														
Time series and forecasting	MSO4351		✓	✓					✓	✓	✓		✓	
Machine learning methods	MSO4357	✓	✓	✓					✓	✓	✓		✓	
Stochastic processes	MSO4358			✓	✓									