Programme Specification

Data Analytics for Government (Part Time) (2021-2022)

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

Awarding Institution	University of Southampton
Teaching Institution	University of Southampton
Mode of Study	Part-time
Duration in years	5
Accreditation details	None
Final award	Master of Science (MSc)
Name of award	Data Analytics for Government (Part Time)
Interim Exit awards	Postgraduate Certificate
	Postgraduate Diploma

FHEQ level of final award	Level 7
UCAS code	Not applicable
Programme code	8081
QAA Subject Benchmark or other external reference	Not Applicable
Programme Lead	Paul Smith

Programme Overview

Brief outline of the programme

The programme is designed to provide you with the specialist skills and knowledge which are central to the conduct of professional statistical work in government. The primary target audience comprises those currently employed in the UK Government Statistical Service and similar analytical professions or equivalent organisations overseas.

Through part-time study, the programme aims to strengthen and update your professional skills and knowledge. Many of the skills taught on the programme, such as survey methods, data science and data analysis, are also in great demand by employers outside government and the programme provides relevant training for professional positions in a wide range of organisations conducting large-scale statistical work.

The modular structure of the programme enables you to tailor your individual scheme of study to your other commitments.

All qualifications are awarded by the University of Southampton and are subject to the same academic standards as other certificates, diplomas and MSc degrees at the University. Teaching takes place primarily at the University of Southampton, and is delivered by experienced personnel from both universities and government.

The MSc comprises an instructional component and a dissertation based on supervised research. The instructional component requires the completion of 4 compulsory modules and 8 option modules. The Certificate requires the completion of 6 modules, 4 of which are specified compulsory modules. Each module is taught over a one week period. Some modules consist of four days of full-time study over Monday to Thursday, while others may use all five days of the week for formal teaching.

Formal teaching includes lectures, discussion sessions with the presenters, time for private study and, for certain modules, computer-based workshops. There will also be an opportunity for you to continue with private study on the Friday for the four-day modules, with access to computing and library facilities as required. The presenter will provide a feedback session on the Friday to discuss any issues arising from your private study.

For part-time students all 12 modules must be completed by no later than the end of semester two in the fourth year of registration. The Certificate requires completion of the 6 modules within two years.

You may find that there are periods of time when you are unable to study, for example if you are on secondment abroad or if you are on maternity leave. During such periods, it is possible to apply for your registration to be suspended. The four years maximum duration of registration for the completion of the 12 modules excludes any periods during which registration is suspended.

Further information about the programme and its component modules can be found in the programme brochure, the student handbook, as well as on the web at http://www.soton.ac.uk/socsci/socstats/moffstat/index.html. Handbooks are available from the Postgraduate Secretary or MSc Data Analytics for Government Programme Co-ordinator, Department of Social Statistics and Demography, Faculty of Social Sciences, University of Southampton, Highfield, Southampton, SO17 1BJ.

Your contact hours will vary depending on your module/option choices. Full information about contact hours is provided in individual module profiles.

Learning and teaching

Modules are taught using a variety of methods, which may include lectures, seminars, group work or project work.

Lectures offer an overview of a topic, an explanation of difficult concepts or a discussion of key issues. They presume a certain amount of additional reading, so it is often a good idea to read references before attending the corresponding lecture.

Seminars provide a forum for a closer examination of particular aspects of each module and are an important part of the learning process. Usually, it is only by discussing and questioning aspects of a subject that their full implications can be understood. You will prepare papers and lead discussions or debates, and develop your written and presentational skills. The increasing use of web-based, video-based and PowerPoint-based teaching methods demonstrates our commitment to the effective use of available equipment and resources.

Assessment

Modules are assessed on the basis of both written coursework and examinations. Examinations will take place at the end of each semester in January and in May/June. The balance between coursework and examinations will vary between modules.

Special Features of the programme

N/A

Please note: As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student's period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our Disclaimer to see why, when and how changes may be made to a student's programme.

Programmes and major changes to programmes are approved through the University's programme validation process which is described in the University's Quality handbook.

Educational Aims of the Programme

The aims of the programme are to: It is expected that you will usually be working within an Official Statistics or analytical environment and the overall aim of the programme is to equip you with the skills you need to develop a career as a Statistician, Data Analyst or in a similar allied profession in Government.

The aims of the programme are to:

·   Give you an overall grounding in the theory and methods of Official Statistics and Data Science.
·   Train you in a selection of topics in the theory and methods of Official Statistics and to expose you to the cutting edge of statistical practice, thus equipping you with the necessary grounding both to understand and to contribute to future developments in the area.
·   Train you in selected topics in Data Science to help you to develop computational skills and experience to deal with new forms of data.
·   Enable you to develop further your career as a professional statistician, particularly in the Government Statistical Service or related professions.
·   Provide you with the requisite skills for carrying out research in the context of measuring economic and social systems relating to Government where statistical analysis and data science methods are crucial.

Programme Learning Outcomes

Having successfully completed this programme you will be able to demonstrate knowledge and understanding of:

Knowledge and Understanding

On successful completion of this programme you will have knowledge and understanding of:

A1.   Concepts and frameworks used in Official Statistics.

A2.   The collection and compilation of data sources used in Official Statistics and how they may be handled in a computational environment.

A3.   The statistical theory underpinning a wide variety of research design and data collection methods. ‡

A4.   The statistical modelling used in Official Statistics ‡.

A5.   Data science methods with potential for wide application in official statistics.

A6.   A range of statistical and data analytical software.

A7.   The role of inference in the scientific approach and the impact of measurement, collection and analysis strategies on the validity and generalisability of research outputs ‡.

A8.   An individual research topic†.

Teaching and Learning Methods

Lectures (A1 to A7), computer workshops (A2, A4 to A6), tutorials (A1 to A7), and supervised research (A8).

Assessment Methods

Examinations (A1, A2, A3, A5, A7), coursework (A2 to A7) and dissertation (A9).

† This general skill is not developed fully for PGDip or PGCert students.
‡ This general skill is not developed fully for PGCert students.

Subject Specific Intellectual and Research Skills

On successful completion of this programme you will be able to:

B1.   Recognise standard and non-standard situations and select appropriate methods of design and analysis.

B2.   Apply methods for research design, data collection and data acquisition, including those based on the survey method and those based on computer-intensive methods.

B3.   Analyse large and complex quantitative data sets ‡.

B4.   Interpret the results of analyses and explain them to non-statisticians ‡.

B5.   Make modifications to statistical methods where necessary.

B6.   Manipulate and analyse large and unstructured datasets.

Teaching and Learning Methods

Lectures (B1 to B6), computer workshops (B3, B4, B6), tutorials (B1, B2 and B4).

Assessment Methods

Examinations (B1, B2 and B5), coursework (B1 to B6).

‡ This general skill is not developed fully for PGCert students.

Transferable and Generic Skills

On successful completion of this programme you will be able to:

C1.   Present the results of your work in written reports.

C2.   Identify and use library and bibliographic resources relevant to your work.

C3.   Manage an individual research project†.

Teaching and Learning Methods

Lectures (C1, C2), tutorials (C2), workshops (C2) and supervised research (C2, C3).

Assessment Methods

Coursework (C1, C2) and dissertation (C1 to C3).

† This general skill is not developed fully for PGDip or PGCert students.

Programme Structure

The programme structure table is below:

Information about pre and co-requisites is included in individual module profiles.

Where optional modules have been specified, the following is an indicative list of available optional modules, which are subject to change each academic year. Please note in some instances modules have limited spaces available.

Part I

The programme is designed to be taken on a part-time basis for those working within the field of Government Statistics or a related area. The instructional part of the programme consists of 4 compulsory modules and 8 option modules that run in one-week slots throughout the academic year. Most modules take place at the University of Southampton, although some are run in Newport at the Office for National Statistics (ONS). Option modules are rotated in a 3-year cycle, so that not all the option modules are available in each year.

The instructional component must be completed within 4 academic years. An additional six months is then allocated to the dissertation. Thus the maximum duration of registration is five years.

If you have completed 6 modules (including the 4 compulsory modules) in your first two years of registration, you can

choose to be awarded a Postgraduate Certificate (PG Cert) in Data Analytics for Government as an exit point.

At the beginning of your registration you are strongly encouraged to attend a one-week revision module covering basic mathematics, statistical inference and an introduction to R. This module takes place in September and is run to help you prepare for postgraduate study.

During your first year of registration we strongly recommend that you complete Survey Sampling (STAT6093) and also encourage you to complete the optional module Regression Modelling (STAT6095) which is a prerequisite for many other modules. In general, you are then free to choose the pathway through the programme that best suits your needs, subject to (a) completing all compulsory modules (b) modules being available and (c) satisfying any pre-requisites for advanced modules. Normally you would complete at least 2 modules during any academic year of your registration.

You may undertake a period of supervised research for a Master's dissertation in an area related to the programme. It is expected that this will be completed within the six months following your formal completion of the instructional component. The dissertation should be between 15,000-20,000 words in length.

Note that none of the modules on the taught component of the programme is core.

Part I Part , II, III and IV Compulsory

The modules listed below are COMPULSORY to your programme and MUST be completed during the course of your studies.

Please note that you must contact the Faculty Office to establish the plan for the taught part of the programme though you would normally complete at least 2 modules per year.

Code	Module Title	ECTS	Type
STAT6114	Data Science Foundations	5	Optional
STAT6103	Statistical Programming	5	Optional
STAT6088	Statistics in Government	5	Optional
STAT6093	Survey Fundamentals	5	Optional

Part I Part I, II, III and IV Optional Semester 1 and 2

The taught component of the programme includes 8 option modules (40ECTS/80CATS), which must be completed within 4 academic years. Option modules rotate in a three year cycle, please contact your Faculty Office for more information. You are strongly recommended to complete STAT6095 during you first year of study.

Code	Module Title	ECTS	Type
STAT6120	Data Mining	5	Optional
STAT6119	Data Visualisation	5	Optional
DEMO6022	Demographic Methods 2	5	Optional

Code	Module Title	ECTS	Type
DEMO6020	Demographic Methods I	5	Optional
STAT6089	Evaluation and Monitoring	5	Optional
STAT6122	Geographic Information Systems	5	Optional
STAT6091	Index Numbers	5	Optional
STAT6096	Intro to Survey Research	5	Optional
STAT6121	Machine Learning	5	Optional
STAT6095	Regression Modelling	5	Optional
STAT6087	Time Series Analysis	5	Optional

Part V

Code	Module Title	ECTS	Type
STAT6113	Dissertation	30	Core

Progression Requirements

The programme follows the University's regulations for *Progression, Determination and Classification of Results: Postgraduate Master's Programmes* Any exemptions or variations to the University regulations, approved by AQSC are located in *section VI of the University Calendar*.

Support for student learning

There are facilities and services to support your learning some of which are accessible to students across the University and some of which will be geared more particularly to students in your particular Faculty or discipline area.

The University provides:
- library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
- high speed access to online electronic learning resources on the Internet from dedicated PC Workstations onsite and from your own devices; laptops, smartphones and tablet PCs via the Eduroam wireless network. There is a wide range of application software available from the Student Public Workstations.
- computer accounts which will connect you to a number of learning technologies for example, the Blackboard virtual learning environment (which facilitates online learning and access to specific learning resources)
- standard ICT tools such as Email, secure filestore and calendars.
- access to key information through the MySouthampton Student Mobile Portal which delivers timetables, Module information, Locations, Tutor details, Library account, bus timetables etc. while you are on the move.
- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library.

- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support and counselling. Support includes daily Drop In at Highfield campus at 13.00 – 15.00 (Monday, Wednesday and Friday out of term-time) or via on-line chat on weekdays from 14.00 – 16.00. Arrangements can also be made for meetings via Skype.
- assessment and support (including specialist IT support) facilities if you have a disability, long term health problem or Specific Learning Difficulty (e.g. dyslexia).
- the Student Services Centre (SSC) to assist you with a range of general enquiries including financial matters, accommodation, exams, graduation, student visas, ID cards
- Career and Employability services, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV
- Other support that includes health services (GPs), chaplaincy (for all faiths) and 'out of hours' support for students in Halls and in the local community, (18.00-08.00)
- A Centre for Language Study, providing assistance in the development of English language and study skills for non-native speakers.

The Students' Union provides
- an academic student representation system, consisting of Course Representatives, Academic Presidents, Faculty Officers and the Vice-President Education; SUSU provides training and support for all these representatives, whose role is to represent students' views to the University.
- opportunities for extracurricular activities and volunteering
- an Advice Centre offering free and confidential advice including support if you need to make an academic appeal
- Support for student peer-to-peer groups, such as Nightline.

Associated with your programme you will be able to access:

· Module co-ordinators support. Module co-ordinators will be available at designated times during the week to discuss issues related to the particular modules you are studying at the time. This will be in addition to class contact time.
· Academic/personal tutor. As soon as you register on this programme, you will be allocated a personal tutor (normally the MSc Data Analytics for Government Programme Coordinator for MDataGov students). S/he is a member of the academic team and will be available to discuss general academic issues related to the programme as well as offer advice and support on any personal issues which may affect your studies.
· Module handbooks/outlines. These will be available at the start of each module. The Handbook includes the aims and learning outcomes of the module, the methods of assessment, relevant background material to the module and a session-by-session breakdown of the module together with appropriate reading lists.
· Within the Faculty, administrative support is provided by your Student Office which deals with student records and related issues and with queries related to your specific degree programme.

Methods for evaluating the quality of teaching and learning

You will have the opportunity to have your say on the quality of the programme in the following ways:

- Completing student evaluation questionnaires for each module of the programme.
- Acting as a student representative on various committees, e.g. Staff/Student Liaison Committees, School Programmes Committee OR providing comments to your student representative to feedback on your behalf.
- Serving as a student representative on Faculty Scrutiny Groups for programme validation.
- Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group.

Further details on the University's quality assurance processes are given in the *Quality Handbook.*

Career Opportunities

The programme is designed to provide you with the specialist skills and knowledge which are central to the conducting professional statistical work within government. The primary target audience consists of those currently employed in the UK Government Statistical Service or equivalent organisations overseas.

Through part-time study, the programme is aimed at enabling this audience to strengthen and update their professional skills and knowledge. Many of the skills taught on the programme, such as survey methods and

data analysis, are also in great demand by employers outside government and it is intended that the programme provides relevant training for professional positions in a wide range of organisations conducting large-scale statistical work.

External Examiner(s) for the programme

Name: Professor Maria Giovanna Ranalli - University of Perugia

Students must not contact External Examiner(s) directly, and external examiners have been advised to refer any such communications back to the University. Students should raise any general queries about the assessment and examination process for the programme with their Course Representative, for consideration through Staff: Student Liaison Committee in the first instance, and Student representatives on Staff: Student Liaison Committees will have the opportunity to consider external examiners' reports as part of the University's quality assurance process.

External examiners do not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact their Personal Academic Tutor in the first instance.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information can be found in the programme handbook.

Appendix 1:

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. In addition to this, students registered for this programme also have to pay for:

Additional Costs

Type	Details
Approved Calculators	Candidates may use calculators in the examination room only as specified by the University and as permitted by the rubric of individual examination papers. The University approved model is Casio FX-570 This may be purchased from any source and no longer needs to carry the University logo.
Hardware	The University's public workstations, loaded with statistical and more generic software, are available to you for use. You may, however, benefit from having your own PC, laptop or tablet, and a USB stick.
Printing and Photocopying Costs	In the majority of cases, coursework such as essays and reports are submitted on line. Your dissertation is also submitted online. Information about generic University printing, including printing costs, can be found here: https://www.southampton.ac.uk/isolutions/students/printing/
Software Licenses	All specific pieces of software required as part of your programme are available on the University's public workstations. Statistical software can be downloaded via iSolutions for free: https://www.software.soton.ac.uk
Stationery	You will be expected to provide your own day-to-day stationery items, e.g. pens, pencils, notebooks, etc. Any specialist stationery items will be specified under the Additional Costs tab of the relevant module profile.
Textbooks	Where a module specifies core texts these should generally be available on the reserve list in the library. However due to demand, students may prefer to buy their own copies. These can be purchased from any source. Some modules suggest reading texts as optional background reading. The library may hold copies of such texts, or alternatively you may wish to purchase your own copies. Although not essential reading, you may benefit from the additional reading materials for the module.

In some cases you'll be able to choose modules (which may have different costs associated with that module) which will change the overall cost of a programme to you. Details of such costs will be listed in the Module Profile. Please also ensure you read the section on additional costs in the University's Fees, Charges and Expenses Regulations in the University Calendar available at www.calendar.soton.ac.uk.