Programme Specification

Applied Statistics (2019-20)

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	Full-time
Duration in years	1
Accreditation details	None
Final award	Master of Science (MSc)
Name of Award	Applied Statistics
Interim Exit awards	Postgraduate Certificate Postgraduate Diploma
FHEQ level of final award	Level 7
UCAS code	
Programme Code	8213
QAA Subject Benchmark or other external reference	ESRC Postgraduate Training & Development Guidelines 2015
Programme Lead	Heini Vaisanen (hev1e15)
Pathway Lead	

Programme Overview

Brief outline of the programme

This programme provides postgraduate instruction in the theory and methods of applied statistics. The programme is for students whose interests lie in the theory and application of statistical methods, and in methods for designing, collecting and analysing large -scale data.

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
The University of Southampton is committed to developing learners who are able to develop a reflective and problem-solving approach by acquiring knowledge and skills in a contextual, integrated manner.

We promote student-centred approaches and recognise the value of learning from past and current experiences as well as the introduction of new knowledge. We aim to support you to be an independent life-long learner able to plan and manage your own learning.

The programme will develop students' skills through individual reading, lectures, seminar discussions and presentations and the preparation of formal assessments. Such activity will enable students to develop and demonstrate an advanced understanding of applied statistical concepts, theories and empirical research.

Learning will be facilitated by a variety of teaching methods including lectures, seminars, computer workshops, group work and project work.

Lectures offer an overview of a topic, an explanation of difficult concepts or a discussion of key issues. Lectures 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 so develop your written and presentational skills.

Computer workshops provide you with hands-on practice of analysing data using major statistical and other software. These workshops will also deepen your understanding of the research methods being applied.

Group work gives you a chance to work as a part of a team, thus developing your skills to work within a team. You will discuss a variety of topics, or you might work to achieve a common goal.

Project work, such as writing your MSc dissertation, will develop your skills in managing an independent research project. It will also enable you to develop in-depth understanding of a research topic relevant to your studies.

Assessment
Assessment includes a range of methods which are designed to encourage students to reflect on their learning, and to assess their understanding of taught material. For example, students are expected to complete essays and critical reviews, and to prepare short oral presentations which address specific questions.

Some modules are assessed by statistical reports or essays (or the equivalent), others by exams and some by a mix of these methods. Exams are held at the end of each semester.

Special Features of the programme

You will benefit from the cutting-edge research conducted in the research centres in which professors from our department hold leading positions: the Southampton Statistical Sciences Research Institute (https://www.southampton.ac.uk/s3ri/) and the ESRC National Centre for Research Methods (https://www.ncrm.ac.uk/). Our main areas of research expertise include, for instance, small-area estimation, census and administrative data, and analysis of 'big data'.

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:

· Train you in the theory and methods of 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 for careers as applied statisticians, particularly in social science related areas such as government statistical services and social research.
· Train you in statistical methodology, with an emphasis on underlying theory.
· Equip you with the skills to undertake research in applied statistics methodology or to take up careers as professional survey statisticians; or to apply your skills in a range of fields, such as social or behavioural sciences, marketing, demography, epidemiology and education.
· Give you the skills for developing new methods for non-standard situations.

Programme Learning Outcomes

Knowledge and Understanding

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

A1. The statistical theory underpinning a wide variety of statistical analysis methods.
A2. The principles of data collection techniques, research design and strategy, including the application of a range of research methods using major statistical software.
A3. 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.
A4. The problems in the analysis of observational data, particularly missing data, the impact of confounding factors and selection bias.
A5. The use of large and complex datasets, official and other statistics on social issues
A6. The use of appropriate statistical modelling techniques used in the social sciences, including generalised linear models.

Teaching and Learning Methods

The programme is designed to facilitate research-led teaching. The teaching methods include lectures, seminars and workshops, group work, computer workshops, and self-directed study. The topics covered in each session will reflect on specific learning outcomes, subject-specific intellectual and research skills. The acquisition of knowledge and understanding specified in the learning outcomes will be achieved through a combination of lectures and seminars, as well as computer workshops and tutorials, where you will be invited to solve real situation problems by analysing individual and aggregate data based on surveys, registration and census records. Self-directed learning is an integral part of the MSc programme and you will have access to a wide range of library and electronic resources. In addition, you will receive academic supervision for undertaking an independent research project, required for successful completion of the degree programme, lasting for 3 months over summer.

Assessment Methods

The modules are typically assessed either by a coursework assignment, group work, oral presentation, or a written examination, or a combination of these methods. The assessment will focus on testing your academic abilities and skills to articulate ideas in a concise and coherent format and the attainment of learning outcomes.

Subject Specific Intellectual and Research Skills

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

B1. Appraise and select appropriate methods of design and analysis in standard and non-standard situations.
B2. Evaluate methods for research design and data collection, including those based on surveys.
B3. Analyse large and complex quantitative data sets; summarise and interpret the results of analyses and explain them to non-statisticians.
B4. Justify modifications to statistical methods where necessary.

Teaching and Learning Methods

These objectives will be achieved through a combination of lectures, tutorials, computer workshops and independent study. The dissertation also offers practical experience in developing more comprehensive skills in some or all of these areas.

Assessment Methods

The subject specific intellectual and research skills will be evaluated using assessment methods, which may include coursework assignments, group work, oral presentation, written examinations, or a combination of these methods. The dissertation will also examine a range of these skills

Transferable and Generic Skills

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

C1. Present, defend and justify the results of your work in written reports and/or oral presentations
C2. Demonstrate a critical awareness of the location of resources relevant to your work from a variety of sources and justify the choice of resource.
C3. Manage an individual research project.

Teaching and Learning Methods

These objectives will be achieved through a combination of lectures, seminars, and independent study. The dissertation offers practical experience in managing a research project and developing skills in communicating your research findings.

Assessment Methods

These learning outcomes will be tested using assessment methods, which may include written coursework assignments, written examinations, oral presentations, and the dissertation.

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.

Pathway

Part I
Typical programme content

The year is divided into two semesters, each of 12 teaching weeks. In the week before the first semester begins, you will attend a four-day induction course which will introduce you to the computing and library facilities available at Southampton.

The programme of study consists of a combination of compulsory and option modules and a dissertation to be completed over the summer months. Each module is worth 7.5, 10 or 20 CATS (3.75, 5 or 10 ECTS) points, and a total of 120 CATS are required to complete the taught component of the programme.

Programme details

The structure of the programme and the modules currently offered are set out below. Of the modules shown against each year of your programme, some are core/compulsory (i.e. enrolment is automatic) and others are options. Against each year, you are directed to which modules are core/compulsory and which are options. The option modules listed constitute an indicative list. There will always be choice but the options might vary between years. A list of option modules will be available to you via the Student Record Self-Service system once you enrol at the University.

The programme is normally studied over one year full-time. The taught component of the programme consists of 30 study weeks divided into two semesters during which time students study 60 ECTS/120 CATS worth of modules. Following the taught component, students undertake a three-month period of supervised research for a Master's dissertation at a value of 30 ECTS/60 CATS.

For any given programme a module is either core, compulsory, or an option. Definitions of these and of the rules surrounding compensation are provided in the General Regulations – Regulations and Definitions Applying to Progression for all Credit-Bearing Programmes (http://www.calendar.soton.ac.uk/sectionIV/credit-bearing-progs.html) and are reproduced below.

Core Module: A Core Module is a module which must be taken and Passed by all students on a particular programme. Core Modules may not be Passed by Compensation.

Compulsory Module: A Compulsory Module is a Module which must be taken by all students on a particular programme. Compulsory Modules may be Passed by Compensation.

Option Module: An Option Module is a Module selected from a group of available Modules which does not become Core or Compulsory on selection. Option Modules may be Passed by Compensation.

STAT6089 is a short course, which is run over a one week period. Anyone wishing to choose this module as an option should first consult with either their Personal Academic Tutor or the MSc Programme Coordinator to discuss how to manage any possible clashes with other selected modules

Part I Compulsory

Code	Module Title	ECTS	Type
STAT6118	Complex Survey Data Analysis	5	Compulsory
STAT6099	Research Communication Skills	5	Compulsory
STAT6086	Sampling Techniques	5	Compulsory
MATH6152	Statistical Computing	5	Compulsory
MATH6153	Statistical Theory and Linear Models	10	Compulsory

Part I Core

Code	Module Title	ECTS	Type
STAT6108	Analysis of Hierarchical (Multilevel & Longitudinal) Data	5	Core
STAT6083	Generalised Linear Models	10	Core

Part I Optional
From the following optional modules:
STAT6089 is a short course running every working day over a period of one week. Should you choose this module, a discussion with your PAT/MSc programme coordinator is needed regarding how you will manage any clashes this may create with your other modules. This may include, for example, viewing lecture recordings (if available) or other tasks as discussed with your PAT/MSc programme coordinator.

Must take 30 credits from the following:-

Code	Module Title	ECTS	Type
MATH6025	Bayesian Methods	3.75	Optional
DEMO6022	Demographic Methods 2	5	Optional
DEMO6020	Demographic Methods I	5	Optional
MATH6027	Design of Experiments	7.5	Optional
MATH6033	Epidemiological Methods	3.75	Optional
STAT6089	Evaluation and Monitoring	5	Optional
STAT6077	Key Topics in Social Science: Measurement and Data	5	Optional
RESM6001	Philosophy of Social Science Research	5	Optional
RESM6003	Qualitative Methods 1	5	Optional
MATH6068	Statistical Genetics	3.75	Optional
RESM6005	Survey Design	5	Optional
MATH6021	Survival Analysis	3.75	Optional

Part II

Part II Core

Code	Module Title	ECTS	Type
STAT6022	Dissertation	30	Core

Progression Requirements

The programme follows the University's regulations for ***Progression, Determination and Classification of Results : Undergraduate and Integrated Masters Programmes*** and ***Progression, Determination and Classification of Results: Postgraduate Master's Programmes*** as set out in the University Calendar: http://www.calendar.soton.ac.uk/sectionIV/sectIV-index.html

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.
· Personal Academic Tutor (PAT). As soon as you register on this programme, you will be allocated a Personal Academic Tutor. 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 (often in online format through Blackboard). 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 surveys for each module of the programme.
· Acting as a student representative on various committees, e.g. Staff-Student Liaison Committees, Faculty 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.

The ways in which the quality of your programme is checked, both inside and outside the University, are:

· Regular module and programme reports which are monitored by the Faculty.
· Programme validation, normally every five years.
· External examiners, who produce an annual report.
· A national Research Excellence Framework (our research activity contributes directly to the quality of your learning experience).
· Institutional Review by the Quality Assurance Agency.

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

Career Opportunities

In Social Sciences, we strongly encourage you to think about and work towards career opportunities that are best suited to you. Our postgraduate programmes will enable you to develop and enhance transferable skills that are highly valued by employers such as critical thinking, research, report writing, problem solving and teamwork. We work closely with Careers and Employability Service (www.southampton.ac.uk/careers/) in order to provide tailor made employability workshops for our postgraduate students to prepare you for your future career and to give you information about further postgraduate study and funding opportunities. These workshops may include external speakers and networking opportunities.

We also recognise the value of placement experience both to enhance your skills and to give you an idea of what it is like to work in a particular sector or specific organisation. The University offers paid placement opportunities with a range of national and international employers to postgraduates on taught programmes through its Excel Southampton Placement programme (http://www.southampton.ac.uk/careers/placements/). You may choose to arrange your own placement although you may find that this is unpaid.
There are a wide range of events, workshops and talks that are organised by Career Destinations (see http://www.southampton.ac.uk/careers/students/events-workshops-fairs/calendar.page) as well as a jobs portal (http://www.student.careers.soton.ac.uk/) and an excellent careers resource centre in Building 37 and online that are all intended to assist you in your career planning.

External Examiner(s) for the programme

Name: Dr Lawrence Pettit - Queen Mary College University of London

Name: Professor Natalie Shlomo - University of Manchester

Name: Dr Paul Norman - University of Leeds

Name: Professor Paul Clarke - University of Essex

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 s/he takes 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
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
Hardware	Public workstations loaded with all specific pieces of software that are required as part of your course are available in Building 58. Public workstations loaded with more generic software are available across the campus. You may, however, benefit from having your own PC or laptop and a USB stick.
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.
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 models are Casio FX85GT and FX85GT Plus or Casio FX570 (all models) these no longer need to carry the University logo. This means that they can be purchased from any retail outlet. You can also use a Casio FX83ES, GT and Plus which are the older approved models.
Printing and Photocopying Costs	Mostof your coursework, such as essays and projects, are likely to be submitted on line. However, there may be some items where it is not possible to submit on line and students will be asked to provide a printed copy. Information about generic University printing, including printing costs, can be found here: https://www.southampton.ac.uk/isolutions/students/printing/

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.