PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	BSc (Hons)
4	**Programme Title**	G100 Mathematics GG13 Mathematics and Statistics G300 Statistics G10X Mathematics with Placement Year GG1X Mathematics and Statistics with Placement Year G30X Statistics with Placement Year 1608U Mathematics with International Study Year 1803U Mathematics and Statistics with International Study Year
5	**UCAS/Programme Code**	See 4.
6	**Programme Accreditation**	Institute of Mathematics and its Applications
7	**QAA Subject Benchmark(s)**	Mathematics, Statistics and Operational Research
8	**FHEQ Level**	6
9	**Date written/revised**	May 2025

10 Programme Aims

The programme aims to:

1 To provide an integrated but flexible degree structure, enabling each student to choose either broad or more specialist study.
2 The structure aims to produce graduates who have a sound, broad knowledge of the fundamental aspects of mathematics and statistics, complemented by knowledge of specialist areas, and an awareness of applications of these subjects.
3 The programme allows students to develop the ability to reason logically and their capacity for mathematical and statistical thinking, and to equip students with a range of subject-related key skills.

For students on the Placement Year programme:

4 Provide students with the experience of seeking and securing a position with an employer.
5 To provide students with a period of practical experience and the opportunity to develop their workplace skills.
6 Facilitate independent self-management and proactive interaction in a non-university setting.
7 Provide a period of practical work experience that will benefit current academic study and longer-term career plans.
8 Enable students to ethically apply their knowledge and skills in the workplace, reflect upon their development and effectively evidence and articulate their learning in relevant future settings.

For students on the International Study Year programme:

9 Offer students the opportunity to develop graduate attributes which increase employability, particularly communication and (where applicable) language skills, intercultural competencies, adaptability, resilience and global awareness.
10 Gain insight into international Higher Education and experience differences in academic approach and learning environment.

11	Provide the opportunity to experience new areas of study outside of their usual programme of study at Newcastle University.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Mathematics and Statistics.

Knowledge and Understanding

On successful completion of the programme students should have:

A1 A broad understanding of fundamental concepts and methods of mathematics and statistics.

A2 Further knowledge and experience of theoretical concepts and analytical techniques in mathematics and statistics.

A3 Further broad knowledge of a number of topics in mathematics and statistics or a more specialist knowledge of particular areas within these subjects, as appropriate to the pathway chosen and as reflected in the degree title awarded.

For students on the Placement Year programme:

A4 Apply personal and professional development strategies to prioritise, plan, and manage their own skills development and learning.

A5 Research, select and apply relevant knowledge aimed at enhancing their own skills and effectiveness in specific duties at their placement.

A6 Demonstrate an understanding of a work environment, how it functions and their contribution to it.

A7 Relate their work-based learning to other areas of personal development, including academic performance.

For students on the International Study Year programme:

A8 Demonstrate the ability to adapt to different learning environments.

Teaching and Learning Methods

Lectures are the principal vehicle for presenting the essential material which defines the module and provide the key element towards achieving the learning outcomes A1-A3.

Problem classes are used to support lectures and enhance students' understanding by providing an opportunity to clarify issues arising from lectures and work through additional examples.

There is one 10 credit problem solving module in stage 1. There is one 10 credit module in stage 1 that involves group working through Assignment Labs. There is one 20 credit module in stage 3 that involves group working.

Assessment Strategy

The standard assessment format, used for most modules, is based on an unseen written examination (counting for at least 70% of the assessment), together with an appropriate mixture of in-course assignments, in-course tests and mini-projects integrated within the stage-level in-course assessment.

These methods all enable assessment of the Learning Outcomes A1-A3. Assessment by unseen examinations is seen as a valid and reliable method of assessing both ability and knowledge. Details of the specific assessment modes and weightings, for each module, are set out in the module specification in the Module Catalogue.

In stages 2 and 3 modules assessed mainly by examination, the typical format for examination papers includes a Section A, consisting of short, straightforward questions which cover the whole module, and a Section B, with longer questions designed to test a greater depth of understanding. In stage 1, we set a variety of short and medium length questions

enabling the students to demonstrate their knowledge of the subject unconstrained by the need to answer complete long questions.

The modules that incorporate group learning are largely assessed by coursework (a combination of in-course tests, presentations, projects, as appropriate to the module).

Intellectual Skills

On successful completion of the programme students should be able to:

B1 Formulate problems.
B2 Prove results by following a sequence of logical steps.
B3 Solve problems.
B4 Present data in an understandable way.
B5 Interpret data

Teaching and Learning Methods

Regular drop-in sessions are used to give students the opportunity to ask individual questions about exercises and to clarify issues arising from lectures. Regular drop-in sessions and problems classes help with learning outcomes B1-B3 in most mathematics modules and with B4 and B5 in most statistics modules.

Assessment Strategy

Coursework assignments are designed to allow students to test and develop these intellectual skills. Typically, there are three assessments in a 10-credit module: a combination of in-course tests, written assignments, mini-project and computer-based assessments, as appropriate to the module. Model solutions to all written assignments are made available to students after the submission point has closed, with the solutions forming a material part of the feedback and learning process for the student cohort. Individual hand-marked work is typically returned within two weeks of the submission date, and marks for computer-based assignments marked by machine are released immediately.
Computer based assessments are used in Stage 1 and, to a lesser extent, in Stage 2 to help the students to develop their problem-solving skills (B3). Having completed an assignment, they are given their marks and the full solutions.

Practical Skills

On successful completion of the programme students should be able to:

C1 Use the mathematical programme Python to solve various mathematical problems.
C2 Use the statistical programming language R to solve various statistical problems.

Teaching and Learning Methods

Practical classes, held in a computer teaching laboratory, introduce students to the use of computer packages (R and Python).
Python and R will be met in Stage 1, with further development in later stages (C1, C2).
Students are expected to use the computer network, as appropriate, for homework assignments or minor projects. Such work often starts in a practical session and is finished in the student's own time.

Assessment Strategy

Computing skills are assessed through tests and mini projects or through questions in coursework assignments. (C1, C2)

Transferable/Key Skills

On successful completion of the programme students should be able to:

D1 Write project reports using typesetting and/or word-processing packages.
D2 Demonstrate a high level of numeracy.
D3 Demonstrate a high level of computer literacy.
D4 Manage time and prioritise tasks by working to strict deadlines.

D5 Communicate effectively in English, using a range of media including oral, poster and written report form.
D6 Take responsibility for their own learning.
D7 Give a presentation.
D8 Work in a team.

For students on the Placement Year programme:

D9 Reflect on and manage own learning and development within the workplace.
D10 Use existing and new knowledge to enhance personal performance in a workplace environment, evaluate the impact and communicate this process.
D11 Use graduate skills in a professional manner in a workplace environment, evaluate the impact and communicate the personal development that has taken place.

For students on the International Study programme:

D12 Adapt and operate in a different cultural environment.

Teaching and Learning Methods

Students learning is supported by regular exercises, typically on a fortnightly cycle (D2, D3). Project work is normally started within Practical sessions (D1, D3).

Further support is given in drop-in sessions (D2, D6). The project module in Stage 3 develops higher level presentational skills and provides an environment for group work (D7, D8).

Lectures within the project modules are used to instruct on how to give oral presentations and how to use LaTeX (D5, D6).

Assessment Strategy

Some statistics modules and some mathematical modules have a project element (D1, D3). Most modules involve exercises which improve numeracy and computer literacy (D2, D3).

All modules have exercises/projects with strict deadlines (D4). Oral presentations count towards the assessment of the Stage 3 group project (D5, D7)

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The programmes without a placement year last three years and comprise 360 credits spread equally over the three stages.

The programmes with a placement year last four years and comprise 360 credits spread equally over three stages together with the placement year. Students are not admitted to a programme with a placement year but may transfer early in Semester 2 of stage 2, subject to approval by the Degree Programme Director.

In **Stage 1**, the School aims first to consolidate and reinforce the students' knowledge on entry, and to provide a sound body of introductory material in mathematical methods and in the three subject areas of Applied Mathematics, Pure Mathematics and Statistics without emphasising boundaries between the subject areas. This provides the foundation for subsequent study in these areas. Students also take problem solving modules that introduce the computing packages Python and R and provide opportunities for teamwork. This comprises 120 credits of compulsory material.

In **Stage 2**, all students undertake further compulsory study in each of Applied Mathematics, Pure Mathematics and Statistics. These modules develop relevant knowledge and experience of more theoretical concepts and further analytical techniques. This comprises at least 90 credits of compulsory material. The remaining credits are selected from a selection of modules in the three subject areas.

In **Stage 3**, a wide choice of modules is provided, extending over the three subject areas. This allows students either to specialise or to continue to study a broad curriculum. There is also a further opportunity to take modules from outside the School (up to 20 credits) at the appropriate level.

Students on the Careers Placement Year / International Study programmes will take their placement in the penultimate year of studies.

Key features of the programme (including what makes the programme distinctive)

A distinctive feature of the School's curriculum is the flexible structure, operating within the University's modular system, in which students can choose pathways which provide either:

- A broad mathematical and statistical education throughout their programme of study or
- A general mathematical and statistical background followed by more specialised study of chosen areas.

The balance of modules chosen by a student through optional choices in Stage 3 is reflected in the degree title awarded.

Subject to approval, students may transfer to a programme including a placement year between stage 2 and 3.

Programme Regulations (line to on-line version)

RG100-GG1X

13 Support for Student Learning

Generic information regarding University provision is available at the following link.

Generic Information

14 Methods for evaluating and improving the quality and standards of teaching and learning

Generic information regarding University provision is available at the following link.

Generic Information

15 Regulation of assessment

Generic information regarding University provision is available at the following link.

Generic Information

In addition, information relating to the programme is provided in:

The University Prospectus

Degree Programme and University Regulations

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if they take full advantage of the learning opportunities provided.