

PROGRAMME SPECIFICATION



1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	n/a
4	Programme Title	BSc with Honours in Mathematics and Statistics Foundation Year
5	UCAS/Programme Code	G101
6	Programme Accreditation	n/a
7	QAA Subject Benchmark(s)	
8	FHEQ Level	3
9	Last updated	February 2023

10 Programme Aims

To equip students with the knowledge and ability to enter the Maths degree programme.

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, depending on module selection, with the aim of gaining skills to enter stage I of a mathematics degree programme.

Knowledge and Understanding

On completing the programme students should:

A1 be able to demonstrate knowledge of maths methods and have knowledge & understanding of maths topics such as differential and integral calculus, including techniques of differentiation and of systematic integration; know the derivatives of some standard mathematical functions; understand why complex numbers were created.

A2 be able to demonstrate knowledge and understanding of materials, such as metals, on the atomic, micro-and macro-scales, and be able to demonstrate knowledge & understanding of the wide range of properties exhibited by materials and how to tailor these to advantage. They should be able to demonstrate knowledge & understanding of the mechanical properties of materials and how these are influenced by atomic bonding and microstructure.

A3 have knowledge of Kinematics and dynamics, displacement and rates of change, simple harmonic motion, Newton's laws, work and energy, kinetic and potential energy, power and efficiency, conservation of energy and momentum, friction.

A4 be able to understand the principles of data collection. They will also have a basic knowledge of data interpretation, data analysis and statistical inference.

A5 be able to describe the main components of computer systems, the functionality of a key set of applications, and understand simple algorithms and discuss principles of computer programming.

A6 demonstrate knowledge and understanding of the elementary physics associated with: Forces, energy, the structure of the atom and the interaction of light with atoms, the structure of the nucleus and its stability, radioactivity and radioactive decay.

Teaching and Learning Methods

Lectures, seminars & tutorials. The primary means of imparting knowledge and understanding is lectures. These are supplemented by seminars which enable students to check their learning. Throughout the course students are encouraged to supplement taught material by independent reading, for which they are given extensive support and guidance on reading materials and how to use them.

Assessment Strategy

Written examinations & coursework

Intellectual Skills

On completing the programme students should be able to:

B1 Use appropriate SI units in engineering and scientific calculations.

B2 solve real world application problems involving algebraic manipulation, graphical techniques and arithmetical skills.

B3 Select and process data to provide appropriate information for technical problems.

B4 identify relevant mathematical principles, functions and approaches, and be able to use them in both mathematical and applied contexts.

B5 Be able to present data in numerical, graphical and tabular form.

Teaching and Learning Methods

Lectures, tutorials. Intellectual skills are developed through lecture and tutorials, and the project modules. Students are encouraged to acquire them through solving problems arising from these.

Assessment Strategy

Written Exams & coursework.

Practical Skills

On completing the programme students should be able to:

C1 integrate taught theory and analytical methods with 'capability' skills in problem solving and practical work.

C2 carry out basic calculations in materials science, selecting and applying the relevant mathematical procedures.

Teaching and Learning Methods
Lab sessions, tutorials. Practical skills are developed by laboratories. Students are encouraged to learn by doing, i.e. undertaking experiments for themselves as part of their modules.
Assessment Strategy
Coursework
Transferable/Key Skills
On completing the programme students should be able to: D1 carry out basic calculations in selecting and applying the relevant mathematical procedures. D2 produce effective presentations: present data in numerical, graphical and tabular form. D3 undertake project work and report writing. D4 produce coursework D5 manage their time D6 participate in Group work D7 select and process data to provide appropriate information for technical problems.
Teaching and Learning Methods
Lectures and tutorials, handouts and lecture notes. Expertise in problem-solving is modelled in lectures and supported tutorials. Communication and presentation skills are also developed in seminars. Student learning is supported by regular problem solving exercises, and formative coursework.
Assessment Strategy
Formative coursework, in-class tests and written examinations.

12 Programme Curriculum, Structure and Features
Basic structure of the programme
120 compulsory credits to be taken.
Key features of the programme (including what makes the programme distinctive)
It is Foundation Level, and has wide-ranging subject content in order to equip students to study in one of several streams.
Programme regulations (link to on-line version)
G101

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: <http://www.ncl.ac.uk/undergraduate/degrees/#subject>
Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

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 she/he takes full advantage of the learning opportunities provided.