PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	BSc (Hons)
4	**Programme Title**	Accounting and Maths Accounting and Statistics Economics and Maths Economics and Statistics Maths and Psychology Computing Science and Mathematics
5	**UCAS/Programme Code**	NG41, NG43, GL11, GL31, CG81, CG83, GG41
6	**Programme Accreditation**	N/A
7	**QAA Subject Benchmark(s)**	Mathematics and statistics
8	**FHEQ Level**	Honours
9	**Date written/revised**	August 2012

10 Programme Aims

This specification for component subject in a Joint Honours in Science Programme must be read in conjunction with the over-arching Joint Honours Programme Specification and one other component subject specification in combinations as outlined above.

The programme aims to:

1 To provide an integrated but flexible degree structure, enabling each student to choose either broad or more specialist study in the final year.

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.

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 completing the programme students will have gained and be able to demonstrate:

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

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 lecture and enhance students' understanding by

providing an opportunity to clarify issues arising from lectures and work through additional examples. In Stage 1, the module MAS1041 includes regular seminars where students present solutions to mathematical problems.

Assessment Strategy

The standard assessment format, used for nearly all modules, is based on an unseen written examination (counting for at least 70% of the assessment), together with an appropriate mixture of course assignments, in-course tests and mini-projects. 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 Degree Programme Handbooks.

In Stage 3 (and in four of the six compulsory modules in Stage 2), we use a standard format for examination papers in which there is 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 (and in two of the six compulsory modules in Stage 2), 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.

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 in all stages to give students the opportunity to ask individual questions about exercises and to clarify issues arising from lectures. This helps with learning outcomes B1-B3 in most mathematics modules and with B4 and B5 in most statistics modules.

Assessment Strategy

Homework assignments are designed to allow students to test and develop these intellectual skills. The assignments are set on a weekly basis for 20 credit modules in Stage 3. In the 10 credit modules (including all those at Stages 1 and 2), there are four or five written assignments. In Stage 1, there is significant use of computer based assessment (CBA); to a lesser extent this is also true in Stages 2 and 3. Model solutions to all homework exercises are made available to students when the marked work is returned, sometimes earlier if appropriate. Marked work is returned within two weeks of the submission date. Computer based assessments are used to help the students to develop their problem solving skills (B3). The students are given access to try questions in CBA practice mode and then a fixed period to attempt randomly generated questions in 'exam' mode. In-course tests are used in some Stage 2 and 3 modules to give students practise in problem solving under exam-like conditions (B3). All three forms of assessment contribute to both formative and summative assessment.

Practical Skills

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

C1 Use the mathematical package Maple to solve various mathematical problems.
C2 Use the statistical programming language R to solve various statistical problems.
C3 Use the mathematical package Matlab to solve various mathematical problems.

Teaching and Learning Methods

Practical classes, held in a computer teaching laboratory, introduce students to the use of computer packages (Maple and R). At Stage 1, Mathematics modules have classes involving the computer algebra package Maple (C1) and in Statistics modules students learn how to use R for data analysis and simulation studies (C2). One module introduces the package Matlab (C3). In later stages, 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 mini projects or through questions in homework assignments. (C1, C2, C3)

Transferable/Key Skills

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

D1 Write project reports using Word
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 Give a presentation.

Teaching and Learning Methods

Students' learning is supported by weekly or fortnightly exercises (D2 and D3). Project work is normally started within Practical sessions (D1 and D3). Further support is given in drop-in sessions (D2). Short presentations in MAS1041 Stage 1 introduce presentations skills (D5).

Assessment Strategy

Many statistics modules and some mathematical modules have a project element (D1 and D3). Most modules involve exercises which improve numeracy (D2). The short presentation in MAS1041 is assessed.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

This component is 50% of a three-year full-time programme.

In **Stage 1**, the first aim is 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 and Statistics. This provides the foundation for subsequent study in these areas. Students also take 'methods' modules that reinforce work in other modules and one of these provides an opportunity to give a short presentation. All modules in Stage 1 are Core and Compulsory.

In **Stage 2**, students undertake further compulsory modules in each of Applied Mathematics and Statistics together with introductory modules in Pure Mathematics. These modules develop relevant knowledge and experience of more theoretical concepts and further analytical techniques.

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.

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

The programme is structured to ensure that students receive a broad mathematical and statistical education throughout the first two years. This allows them to choose either to continue studying a broad range of subjects in Stage 3, or to specialise in Stage 3 (largely in Applied Mathematics or Statistics).

Programme regulations (link to on-line version)

http://www.ncl.ac.uk/regulations/

13 Criteria for admission

Presented in overarching Joint Honours Programme Specification.

14 Support for Student Learning

Presented in overarching Joint Honours Programme Specification.

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

Module reviews
All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the School Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff-Student Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

Integration at Programme level is presented in the overarching Joint Honours Programme Specification.

16 Regulation of assessment

Presented in overarching Joint Honours Programme Specification.

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

The University Prospectus (see http://www.ncl.ac.uk/undergraduate/)

The School Brochure (contact enquiries@ncl.ac.uk)

The University Regulations (see http://www.ncl.ac.uk/calendar/university.regs/)

The Degree Programme Handbook

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. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

Annex

Mapping of Intended Learning Outcomes onto Curriculum/Modules

		Intended Learning Outcomes			
Module	**Type**	**A**	**B**	**C**	**D**
MAS1041	Core	1	1,3	1	2,4,5
MAS1042	Core	1	1,3	1	2,4
MAS1141	Core	1	1,3	1	2,3,4
MAS1142	Core	1	1,3	1	2,3,4
MAS1341	Core	1	1,3,4,5	2	1,2,3,4
MAS1342	Core	1	1,3,4,5	2	1,2,3,4
MAS2104	Compulsory	2	1,3		2,4
MAS2105	Compulsory	2	1,3	1	2,4
MAS2241	Compulsory	1	1,2,3	1	2,4
MAS2242	Compulsory	1	1,2,3	1	2,4
MAS2304	Compulsory	2	1,2,3	2	2,4
MAS2316	Compulsory	2	1,2,3		2,4
MAS3103		2	1,3		2,4
MAS3106		2	1,3	3	1,2,3,4
MAS3111		3	1,3		2,4
MAS3119		3	1,3		2,4
MAS3213		2	2,3		2,4
MAS3216		2	2,3	1	2,4
MAS3223		2	2,3		2,4
MAS3224		2	2,3		2,4
MAS3302		2	1,3,5	2	2,4
MAS3317		2	1,3,5	2	2,4
MAS3320		3	1,2,3,4,5	2	1,2,3,4
MAS3322		3	1,2,3		2,4
MAS3323		3	1,2,3,4,5	2	1,2,3,4
MAS3324		3	1,2,3		2,4
MAS3328		3	1,3,4,5	2	1,2,3,4