PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	BSc (Hons)
4	**Programme Title**	Natural Sciences
5	**UCAS/Programme Code**	GFC0
6	**Programme Accreditation**	N/A
7	**QAA Subject Benchmark(s)**	Biological Sciences, Chemistry, Mathematics, Physics
8	**FHEQ Level**	Honours
9	**Date written/revised**	February 2007

10 Programme Aims

The programme aims to provide students with an opportunity to:

1 Obtain a broad-based science degree involving study of at least three science subjects, of which at least two will be studied in a depth equivalent to that of a single honours programme

2 Study appropriate science subjects important for progression into developing subject areas, such as nanotechnology, bioinformatics, which require cross-discipline knowledge and skills

3 Carry out a research project in the subject of their choice (except for mathematics which will involve several mini-projects)

4 Gain key transferable skills which will be valued by employers and essential for success in their future careers

while providing:

5 A stimulating learning environment which encourages students to achieve their full potential

6 Aprogramme which meets the requirements of Level H of the FHEQ and provides subject-specific knowledge which meets an appropriate sub-set of the benchmarks for the individual subjects studied

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 biological sciences, chemistry, maths and physics.

Knowledge and Understanding

Students completing the BSc in Natural Sciences should have a knowledge and understanding of the key aspects of:

A1 At least two science subjects to a depth equivalent to that expected at Level H of the FHEQ

A2 At least one other science subject to a depth equivalent, at least, to that expected at Level I of the FHEQ

A3 Additional subjects, such as a fourth science subject, business and management or a modern European language, to a depth equivalent to that expected at Level C or Level I of the FHEQ

Teaching and Learning Methods

Students acquire understanding and knowledge (the complexity of which increases as the course progresses) through lectures, tutorials, seminars and workshops. At stage 1 students learn basic, and at stage 2 more sophisticated, technical procedures by performing carefully designed and tested experiments. In laboratory classes they consolidate the learning started in lectures. At stage 3 the students learn more advanced theoretical material and, for those doing laboratory based projects, advanced practical methods.

Assessment Strategy

Knowledge and understanding is assessed through unseen written examination, in-course assessments and answers to questions in practical reports.

Intellectual Skills

Within the programme, irrespective of their subjects of studies, students will have developed their ability to:

B1 Identify, formulate and solve problems

B2 Propose hypotheses based on existing knowledge and test them appropriately

B3 Initiate and conduct investigations using the technical or professional literature and/or the appropriate tools and techniques

B4 Critically interpret data, both from the literature or newly derived, including acknowledgement of possible alternative interpretations

Teaching and Learning Methods

Intellectual skills are developed throughout the programme. Students apply the concepts learnt in lectures to solve problems in laboratory work and seminars. Tutorials facilitate individual and group participation in answering problems. B4 is practised and developed in the stage 3 project.

Assessment Strategy

Problem solving based examinations and oral responses to problems or tasks (eg in tutorials, computer classes and laboratory courses) are used to test these skills. Laboratory reports, especially for the stage 3 project enable the assessment of these skills.

Practical Skills

The programme provides the opportunity for students to develop and demonstrate, where appropriate to their selected subjects:

C1 Laboratory and analytical skills, the use of key equipment, instrument calibration and the ability to record experimental measurements with appropriate precision

C2 The ability to manipulate, statistically analyse and present experimental data in an appropriate format

C3 The application and, if appropriate to their chosen subjects, the development (using a range of programming languages and paradigms) of appropriate software

C4 A knowledge of appropriate safety and statutory regulations

Teaching and Learning Methods

Students receive close supervision in the laboratory when performing experiments to enable them to develop safe working practices and good techniques. Formative feedback is used to enable progressive development of these skills. At stage 3 students learn to plan and design experiments for themselves, they work with a greater level of independence and perform more technically (or intellectually) demanding procedures.

Assessment Strategy

These skills are assessed by laboratory reports which include pre and post experiment questions and address safety aspects in addition to technical issues. If appropriate for their chosen subjects, skills are also tested by in course assessment.

Transferable/Key Skills

After completing the programme successfully students should be able to:

D1 Communicate effectively in writing or orally
D2 Demonstrate effective interpersonal skills
D3 Participate effectively as a member of a team
D4 Plan and organise their work effectively within the time available
D5 Use ICT effectively for finding and disseminating information
D6 Demonstrate, at least, a good standard of numeracy
D7 Work independently demonstrating, where appropriate, self-reliance, responsibility, initiative and adaptability
D8 Make decisions in complex and unpredictable contexts

Teaching and Learning Methods

Students develop written communication skills in all modules through the submission of in course and final assessments. They practice oral communication skills in laboratory work, tutorials and presentations (eg in Stage 3 projects). The delivery of course work, including laboratory reports to deadlines enables them to develop time keeping skills. Many of the modules require a level of numeracy which, for some modules, becomes highly advanced. D7 and D8 are integral to the laboratory and project modules.

Assessment Strategy

Written work and (where appropriate) stage 3 presentations are used to assess communication skills. Many of the skills are assessed in written examinations by both the answers and the approach to question answering. Students demonstrate timekeeping by the timely submission of assessed work and laboratory reports. D5 is assessed specifically in some modules and indirectly in others eg in the production of reports. The stage 3 project assesses and/or enables the student to demonstrate, D7 and D8.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The degree programme is offered full-time (3 years). Students have to take 120 credits at each stage for a total of 360 credits. At stages 1 and 2 students take two major subjects from Chemistry, Maths, Molecular Biology and Physics and may take a third major from this list or Computing Science. Students taking two majors also take two minor subjects, one of which must be a science. At stage 3 students replace take a project (or additional maths modules) in place of 20 credits of a subject studied in earlier years.

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

The programme allows students to study two science subjects to a depth equivalent to level H of the FHEQ and either a third science subject to the same level or two other subjects, of which one must be a science subject, to a depth equivalent to, at least, level I of the FHEQ. This structure allows students who have a broad interest in science to continue to study a number of their preferred science subjects to honours degree level and also provides training for students who wish to gain employment in one of the increasing number of multi-disciplinary science industries. The programme enables a number of science subjects to be studied in the same depth, but with less breadth, than the equivalent single honours degree programme and also enables students to carry out a research project in their final year which provides a good foundation for students who wish to pursue their studies at postgraduate level.

Programme regulations (link to on-line version)

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

13 Criteria for admission

Standard entrance criteria

The standard A Level offer for this programme is ABB from 18 units including a minimum of 12 from 6 or 12-unit qualifications. Mathematics is required at GCSE grade B or above if not offered at a higher level. Study of Chemistry requires A level Chemistry; study of Biology requires A level Biology and preferably A or AS level Chemistry; study of Mathematics requires A level Mathematics and study of Physics requires A level Physics and Mathematics.

Applicants for whom English is not their first language must provide evidence of a satisfactory command of English by means of an IELTS score of 6.5 or greater.

Applicants with not-standard qualifications

Applications are welcomed from candidates with Scottish Highers, the International Baccalaureate, Access to HE courses, BTEC National Diploma and a full range of European and international qualifications. Applicants with these qualifications will be considered on an individual basis.

Admissions Policy

Upon receipt of a UCAS application form candidates are invited to visit the University on an Open Day. Students will be made offers, if appropriate, based on the information provided on the UCAS form.

14 Support for Student Learning

Induction

The first week of the first term/semester is an Induction Week with no formal teaching. During this period all students attend an induction programme in which they will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. In particular all new students will be given general information about the School and their programme, as described in the Degree Programme Handbook. The International Office offers an additional induction programme for overseas students (see http://www.ncl.ac.uk/international/coming_to_newcastle/orientation.phtml)

Study skills support

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

Numeracy support is available through Maths Aid.

Help with academic writing is available from the Writing Centre.

Academic support
The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff-Student Committee, and/or at the Board of Studies.

Pastoral support
All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. Details of the personal tutor system can be found at http://www.ncl.ac.uk/undergraduate/support/tutor.phtml
In addition the University offers a range of support services, including the Student Advice Centre, the Student Counselling Service, the Mature Student Support Service, and a Childcare Support Officer, see http://www.ncl.ac.uk/undergraduate/support/welfare.phtml

Support for students with disabilities
The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies. For further details see http://www.ncl.ac.uk/disability-support/

Learning resources
The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities, see
http://www.ncl.ac.uk/undergraduate/support/acfacilities.phtml

All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on behalf of Newcastle University. Where appropriate, in-sessional language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange.

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.

Programme reviews
The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

External Examiner reports
External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee. External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

Student evaluations
All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff-Student Committee, and the Board of

Studies. The National Student Survey is sent out every year to final-year undergraduate students, and consists of a set of questions seeking the students' views on the quality of the learning and teaching in their HEIs. Further information is at www.thestudentsurvey.com/ With reference to the outcomes of the NSS and institutional student satisfaction surveys actions are taken at all appropriate levels by the institution.

Mechanisms for gaining student feedback
Feedback is channelled via the Staff-Student Committee and the Board of Studies.

Faculty and University Review Mechanisms
The programme is subject to the University's Internal Subject Review process, see http://www.ncl.ac.uk/aqss/qsh/internal_subject_review/index.php

Additional mechanisms

Review Mechanisms:

Student Questionnaires
Degree Programme Review
Internal Subject Review
QAA Academic Review

Committees For Monitoring Quality

Faculty Board for Co- and Multi-disciplinary Degree Programmes
Co- and Multi-disciplinary Staff-Student Committee
Awards Board for Co- and Multi-Disciplinary Degree programmes
Subject Area Boards of Studies
Subject Area Boards of Examiners
Subject Area Staff-Student Committees
Faculty Teaching and Learning Committee
University Teaching and Learning Committee

Role of the External Assessor

An External Assessor, a distinguished member of the subject community, is appointed by Faculty Teaching and Learning Committee, after recommendation from the Faculty Board for Co-and Multi disciplinary programme. The External Assessor is expected to:

Accept marks provided by Board of Examiners in individual Subject areas.
Ensure awards are in accordance with University regulations
Report to the University on the standards of the programme

16 Regulation of assessment

Pass mark
The pass mark is 40 (Undergraduate programmes)

Course requirements
Progression is subject to the University's Undergraduate Progress Regulations and Undergraduate Examination Conventions. In summary, students must pass, or be deemed to have passed, 120 credits at each Stage. Limited compensation up to 40 credits and down to a mark of 35 is possible at each Stage and there are resit opportunities, with certain restrictions.

Weighting of stages
All modules taken at Stages 2 and 3 contribute to the award of the final degree in the ratio 1:2.

Common Marking Scheme

The University employs a common marking scheme, which is specified in the Undergraduate Examination Conventions, namely

	Honours	Non-honours
<40	Fail	Failing
40-49	Third Class	Basic
50-59	Second Class, Second Division	Good
60-69	Second Class, First Division	Very Good
70+	First Class	Excellent

Role of the External Examiner

An External Examiner, a distinguished member of the subject community, is appointed by Faculty Teaching and Learning Committee, after recommendation from the Board of Studies. The External Examiner is expected to:

- See and approve examination papers
- Moderate examination and coursework marking
- Attend the Board of Examiners
- Report to the University on the standards of the programme

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 (see http://www.ncl.ac.uk/nsci/teaching/natsci_handbook/0607/index.htm)

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.

Mapping of Intended Learning Outcomes onto Curriculum/Modules

This should be read in conjunction with the subject specific programme specifications for individual module details.

Development of specific Intended Learning Outcomes occurs through the following modules (all optional modules)

A1.	at least two science subjects to a depth equivalent to that expected at Level H of the FHEQ	Stage 2 and 3 modules in all subjects
A2	at least one other science subject to a depth equivalent, at least, to that expected at Level I of the FHEQ	Stage 2 and 3 modules in all subjects
A3	additional subjects, such as a fourth science subject, business and management or a modern European language, to a depth equivalent to that expected at Level C or Level I of the FHEQ	CSC1011, CSC1012, ACE1019, PSY1007, PSY1002, PSY1008, PSY1005, FRE1065, BUS1001, ECO1001, BUS2017, BUS2019, ECO2001, ECO2002, BUS3016, ECO2006, ECO2008, ECO2010, ECO2011, ECO3003, ECO3012, ECO3013, ECO3016, ECO3018, ECO3021, ECO3023, ECO3022, ECO3025, ECO3026, ECO3027, ECO3028.
B1	identify, formulate and solve problems	ACE1013, ACE1019, ACE2034, BIO1001, BIO2010, BIO3015, BIO3018, BIO8008, BNS2010, BUS1001, BUS2017, BUS2019, BUS3016, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, CSC1011, CSC1012, CSC2001, CSC2002, CSC2501, CSC3003, CSC3090, CSC3097, CSC3501, ECO1001, ECO2001, ECO2002, MAS1001, MAS1101, MAS1301, MAS2102, MAS2104, MAS2105, MAS2106, MAS2302, MAS2303, MAS2304, MAS2305, MAS3101, MAS3107, MAS3108, MAS3109, MAS3110, MAS3111, MAS3307, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, PSY1002, PSY1005, PSY1007, PSY1008, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.
B2	propose hypotheses based on existing knowledge and test them appropriately	ACE1013, ACE1019, ACE2034, BIO1001, BIO2010, BIO3015, BIO3018, BIO8008, BNS2010, BUS1001, BUS2017, BUS2019, BUS3016, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, CSC1011, CSC1012, CSC2001, CSC2002, CSC2501, CSC3003, CSC3090, CSC3097, CSC3501, ECO1001, ECO2001, ECO2002, MAS1001, MAS1101, MAS1301, MAS2102, MAS2104, MAS2105, MAS2106, MAS2302, MAS2303, MAS2304, MAS2305, MAS3101, MAS3107, MAS3108, MAS3109, MAS3110, MAS3111, MAS3307, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, PSY1002, PSY1005, PSY1007, PSY1008, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.
B3	initiate and conduct investigations using the technical or professional literature and/or the	ACE1013, ACE1019, ACE2034, BIO1001, BIO2010, BIO3015, BIO3018, BIO8008, BNS2010, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, CSC1011, CSC1012, CSC2001, CSC2002, CSC2501, CSC3003, CSC3090, CSC3097, CSC3501, ECO1001, ECO2001, ECO2002, MAS1001, MAS1101, MAS1301, MAS2102,

	appropriate tools and techniques	MAS2104, MAS2105, MAS2106, MAS2302, MAS2303, MAS2304, MAS2305, MAS3101, MAS3107, MAS3108, MAS3109, MAS3110, MAS3111, MAS3307, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, PSY1002, PSY1005, PSY1007, PSY1008, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.
B4	critically interpret data, both from the literature or newly derived, including acknowledgement of possible alternative interpretations	BIO8008, BNS2010, BUS1001, BUS2017, BUS2019, BUS3016, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, CSC1011, CSC1012, CSC2001, CSC2002, CSC2501, CSC3003, CSC3090, CSC3097, CSC3501, ECO1001, ECO2001, ECO2002, MAS1001, MAS1101, MAS1301, MAS2102, MAS2104, MAS2105, MAS2106, MAS2302, MAS2303, MAS2304, MAS2305, MAS3101, MAS3107, MAS3108, MAS3109, MAS3110, MAS3111, MAS3307, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, PSY1002, PSY1005, PSY1007, PSY1008, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.
C1	laboratory and analytical skills, the use of key equipment, instrument calibration and the ability to record experimental measurements with appropriate precision	ACE1013, ACE1019, ACE2034, BIO1001, BIO2010, BIO3015, BIO3018, BIO8008, BNS2010, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.
C2	the ability to manipulate, statistically analyse and present experimental data in an appropriate format	BIO8008, BNS2010, BUS1001, BUS2017, BUS2019, BUS3016, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, CSC1011, CSC1012, CSC2001, CSC2002, CSC2501, CSC3003, CSC3090, CSC3097, CSC3501, ECO1001, ECO2001, ECO2002, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, PSY1002, PSY1005, PSY1007, PSY1008, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.
C3	the application and, if appropriate to their chosen subjects, the development (using a range of programming languages and paradigms) of appropriate software	BIO8008, BNS2010, BUS1001, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, CSC1011, CSC1012, CSC2001, CSC2002, CSC2501, CSC3003, CSC3090, CSC3097, CSC3501, MAS1001, MAS1101, MAS1301, MAS2102, MAS2104, MAS2105, MAS2106, MAS2302, MAS2303, MAS2304, MAS2305, MAS3101, MAS3107, MAS3108, MAS3109, MAS3110, MAS3111, MAS3307, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.
C4	a knowledge of appropriate safety and statutory regulations	BIO8008, BNS2010, BUS1001, CHY1101, CHY1201, CHY1301, CHY2101, CHY2201, CHY2301, CHY3095, CHY3101, CHY3201, CHY3301, CSC1011, CSC1012, CSC2001, CSC2002, CSC2501, CSC3003, CSC3090, CSC3097, CSC3501, MAS1001, MAS1101, MAS1301, MAS2102, MAS2104, MAS2105, MAS2106, MAS2302, MAS2303, MAS2304, MAS2305, MAS3101, MAS3107, MAS3108, MAS3109, MAS3110, MAS3111, MAS3307, PHY1001, PHY1002, PHY2003, PHY2005, PHY2006, PHY3001, PHY3002, PHY3008, PHY3009, PHY3010, SY2001, PSY2002, PSY2006, PSY3005, PSY3008, SFY0001, SFY0003.

D1	communicate effectively in writing or orally	All modules
D2	demonstrate effective interpersonal skills	All modules
D3	participate effectively as a member of a team	Psychology All modules for independent work, and stage 3 module presentations for teamwork specifically; ECO1001, , ECO1008, ECO1013, ECO1015, ECO2002, ECO2009, ECO3018.
D4	plan and organise their work effectively within the time available	All modules
D5	use ICT effectively for finding and disseminating information	All modules
D6	demonstrate, at least, a good standard of numeracy	All modules
D7	work independently demonstrating, where appropriate, self-reliance, responsibility, initiative and adaptability	All modules
D8	make decisions in complex and unpredictable contexts	All modules