For 2008 entrants only

# BSc NATURAL SCIENCES (CFG0)

Programme offered at: Durham

Mode of study: this programme is available full-time.

1. All module selections must be approved by the Deputy Head of Faculty (Natural Sciences) and be compatible in the timetable.

2. At Level 1 students take modules from at least two and no more than four subjects, to a maximum of 80 credits per subject. The selection may include up to 40 credits from outside the list of modules that make up the Natural Sciences programme.

3. At Level 2 students take modules from at least two and no more than four subjects, to a maximum of 80 credits per subject. A student can take up to 120 credits from outside the list of modules that make up the Natural Sciences programme over Levels 1, 2 and 3.

4. At Level 3 students take modules from at least two and no more than three subjects to a maximum of 100 credits per subject. A student can take up to 120 credits from outside the list of modules that make up the Natural Sciences programme over Levels 1, 2 and 3.

5. Within the Natural Sciences programme certain combinations of modules are known as Joint Honours degrees. Students who follow these combinations of modules will be awarded a specific title for their degree.

6. Students who follow an approved Joint Honours degree, will be awarded a BSc Honours in A and B within the Natural Sciences programme, where A and B are replaced by the approved subject titles. Normally each subject will have a single subject title.

7. In order to qualify for the degree BSc Honours in A and B within the Natural Sciences programme, students in Levels 2 and 3 must select modules from the same two subjects and the number of credits in either subject cannot exceed 80 in each of Levels 2 and 3. In the following table the following abbreviations apply:

| | | | |
|---|---|---|---|
| An | Anthropology | Ec | Economics |
| Ar | Archaeology | Gg | Geography |
| As | Astronomy | Ma | Mathematics |
| Bi | Biology | Ph | Philosophy |
| Bs | Business | Py | Physics |
| Ch | Chemistry | Ps | Psychology |
| CS | Computer Science | St | Statistics |
| ES | Earth Sciences | | |

The following combinations are currently available:

| | **An** | **Ar** | **As** | **Bi** | **Bs** | **Ch** | **CS** | **ES** | **Ec** | **Gg** | **Ma** | **Ph** | **Py** | **Ps** | **St** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **An** | | | | * | | | | | | | | | | * | |
| **Ar** | | | | | | | | * | | | | | | | |
| **As** | | | | | | * | * | * | | | * | * | | | |
| **Bi** | * | | | | | * | | * | | * | * | | | * | |
| **Bs** | | | | | | | * | | | | | | | | |
| **Ch** | | | * | * | | | | * | | | * | | * | | |
| **CS** | | | * | | * | | | | | | * | | * | | |
| **ES** | | * | * | * | | * | | | | * | * | | | | |
| **Ec** | | | | | | | | | | | * | | | * | |
| **Gg** | | | | * | | | | * | | | * | | | * | * |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ma** | | | * | * | | * | * | * | * | * | | * | * | * | |
| **Ph** | | | * | | | | | | | | * | | * | | |
| **Py** | | | | | | * | * | | | | * | * | | | |
| **Ps** | * | | | * | | | * | | * | * | * | | | | * |
| **St** | | | | | | | | | | * | | | | * | |

***Table 1: Joint Honours Combinations available in the A AND B degree***

The table above shows the combinations that are currently available (an * indicates that combining these two subjects is possible and the abbreviations represent the subjects in the above list).

8. The degree certificate issued to successful students who have taken a BSc Natural Sciences degree shall list all subjects in which they have taken at least 40 credits during Levels 2 and 3 of the degree programme.

9. If a chosen combination can be studied as part of the Combined Honours in Social Sciences programme, a student would normally be expected to transfer to that programme.

For 2009 and 2010 entrants only

## BSc NATURAL SCIENCES (CFG0)

Programme offered at: Durham

Mode of study: this programme is available full-time.

1. All module selections must be approved by the Deputy Head of Faculty (Natural Sciences) and be compatible in the timetable.

2. At Level 1 students take modules from at least two and no more than four subjects, to a maximum of 80 credits per subject.

3. At Level 2 students take modules from at least two and no more than four subjects, to a maximum of 80 credits per subject.

4. At Level 3 students take modules from at least two and no more than three subjects to a maximum of 100 credits per subject.

5. Within the Natural Sciences programme certain combinations of modules are known as Joint Honours degrees. Students who follow these combinations of modules will be awarded a specific title for their degree.

6. Students who follow an approved Joint Honours degree, will be awarded a BSc Honours in A and B within the Natural Sciences programme, where A and B are replaced by the approved subject titles. Normally each subject will have a single subject title.

7. In order to qualify for the degree BSc Honours in A and B within the Natural Sciences programme, students in Levels 2 and 3 must select modules from the same two subjects and the number of credits in either subject cannot exceed 80 in each of Levels 2 and 3. In the following table the following abbreviations apply:

| | | | |
|---|---|---|---|
| An | Anthropology | Ec | Economics |
| Ar | Archaeology | Gg | Geography |
| As | Astronomy | Ma | Mathematics |
| Bi | Biology | Ph | Philosophy |
| Bs | Business | Py | Physics |
| Ch | Chemistry | Ps | Psychology |
| CS | Computer Science | St | Statistics |
| ES | Earth Sciences | | |

The following combinations are currently available:

| | An | Ar | As | Bi | Bs | Ch | CS | ES | Ec | Gg | Ma | Ph | Py | Ps | St |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **An** | | | | * | | | | | | | | | | * | |
| **Ar** | | | | | | | | * | | | | | | | |
| **As** | | | | | | * | * | * | | | * | * | | | |
| **Bi** | * | | | | | * | | * | | * | * | | | * | |
| **Bs** | | | | | | | * | | | | | | | | |
| **Ch** | | | * | * | | | | * | | | * | | * | | |
| **CS** | | | * | | * | | | | | | * | | * | | |
| **ES** | | * | * | * | | * | | | | * | * | | | | |
| **Ec** | | | | | | | | | | | * | | | * | |
| **Gg** | | | | * | | | | * | | | * | | | * | * |
| **Ma** | | | * | * | | * | * | * | * | * | | * | * | * | |
| **Ph** | | | * | | | | | | | | * | | * | | |
| **Py** | | | | | | * | * | | | | * | * | | | |
| **Ps** | * | | | * | | | * | | * | * | * | | | | * |
| **St** | | | | | | | | | | * | | | | * | |

***Table 1: Joint Honours Combinations available in the A AND B degree***

The table above shows the combinations that are currently available (an * indicates that combining these two subjects is possible and the abbreviations represent the subjects in the above list).

8. The degree certificate issued to successful students who have taken a BSc Natural Sciences degree shall list all subjects in which they have taken at least 40 credits during Levels 2 and 3 of the degree programme.

9. Students studying for a BSc Natural Sciences degree must take modules to the value of at least 180 credits from the Faculty of Science over the three years of study. Students studying for a Joint Honours degree are exempt from the requirement. The subjects within the Faculty of Science are Astronomy, Biology, Chemistry, Computer Science, Earth Sciences, Mathematics, Physics, Psychology and Statistics.

All choices of modules require the approval of the Deputy Head of Faculty (Natural Sciences). All selected modules must be timetable compatible.

**ANTHROPOLOGY MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1** | Human Origins and Diversity | ANTH1071 | 20 |
| **Modules** | People and Cultures | ANTH1061 | 20 |
| **Level 2** | Evolutionary Anthropology | ANTH2061 | 20 |
| **Modules** | Human Ecology, Genetics and Health | ANTH2011 | 20 |
| | Biology, Culture and Society | ANTH2021 | 20 |
| | Methods and Explanations | ANTH2031 | 20 |
| | Political and Economic Organisation | ANTH2051 | 20 |
| | Kinship and Belief Systems | ANTH2041 | 20 |
| **Level 3** | Business Anthropology | ANTH3041 | 20 |
| **Modules** | Change and Development | ANTH3111 | 20 |
| | Current Issues in Sociocultural Anthropology | ANTH3011 | 20 |
| | Dissertation in Anthropology | ANTH3141 | 20 |
| | Material Culture | ANTH3081 | 20 |
| | Nutritional and Disease Ecology | ANTH3151 | 20 |
| | Palaeoanthropology | ANTH3061 | 20 |
| | Recent Developments in Biological Anthropology | ANTH3171 | 20 |
| | Anthropology of Science and Ethics | HUSS3141 | 20 |
| | Mental Health, Illness and Drug Use | HUSS3241 | 20 |
| | Power and Governance | HUSS3501 | 20 |
| | Understanding Behaviour | HUSS3301 | 20 |

## REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING ANTHROPOLOGY

| | |
|---|---|
| **Level 1** | ANTH1071 Human Origins and Diversity<br>ANTH1061 People and Cultures |
| **Level 2** | All students are required to take at least ANTH2061 Evolutionary Anthropology and/or ANTH2011 Human Ecology, Genetics and Health. |
| **Level 3** | All students can take up to four modules from the Level 3 Anthropology modules. If three or more Anthropology modules are taken, one of the modules can be at Level 2. |

## ARCHAEOLOGY MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS

| | | | |
|---|---|---|---|
| **Level 1 Modules** | Ancient Civilisations of the East | ARCH1111 | 20 |
| | Discovering World Prehistory | ARCH1121 | 20 |
| | From Roman Empire to Nation State | ARCH1101 | 20 |
| | Introduction to Archaeology | ARCH1071 | 20 |
| | Scientific Methods in Archaeology 1 | ARCH1041 | 20 |
| **Level 2 Modules** | Ancient Empires of the East | ARCH2141 | 20 |
| | Scientific Methods in Archaeology 2 | ARCH2041 | 20 |
| | Archaeology of Medieval and Post-Medieval Britain in its European Context | ARCH2131 | 20 |
| | Experimental Methods of Archaeological Science (EMAS) | ARCH2111 | 20 |
| | Field Archaeology of Britain | ARCH2101 | 20 |
| | Mediterranean Expansion: Rome and Native Societies | ARCH2091 | 20 |
| | Prehistoric Europe: from Foragers to State Formation | ARCH2081 | 20 |
| **Level 3 Modules** | Archaeological Artefacts and Materials † | ARCH3471 | 20 |
| | Archaeological Surveying † | ARCH3491 | 20 |
| | Archaeology Dissertation (20 Credits) | ARCH3371 | 20 |
| | Bones and Human Societies † | ARCH3461 | 20 |
| | Palaeoethnobotany: Plants and Human Societies | ARCH3551 | 20 |
| | Scientific Methods in Archaeology 3 | ARCH3051 | 20 |
| | Specialised Aspects in Archaeology (20 Credits) | ARCH3451 | 20 |
| | Specialised Aspects in Archaeology (40 Credits) | ARCH3472 | 40 |
| **Level 4 Modules** | Dissertation | ARCH4003 | 60 |

Only one of the modules marked with a † can be chosen. These modules are capped and students wishing to take one should contact the Department of Archaeology before the start of the examination period in Level 2 for details of application procedures.

## REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING ARCHAEOLOGY

| | |
|---|---|
| **Level 1** | ARCH1041 Scientific Methods in Archaeology 1 plus at least one of ARCH1121 Discovering World Prehistory, ARCH1101 From Roman Empire to Nation State and ARCH1111 Ancient Civilisations of the East. If modules to the value of 60 credits or more in Archaeology are taken, the third 20 credit module must be ARCH1071 Introduction to Archaeology. |
| **Level 2** | ARCH2041 Scientific Methods in Archaeology 2 plus modules to the value of 20, 40 or 60 credits from the list of Level 2 Archaeology modules listed above. One 20 credit Level 1 Archaeology module may be taken if Archaeology modules to the value of 60 or 80 credits are taken, unless Level 1 Archaeology modules to the value of 80 credits have been taken. |
| **Level 3** | ARCH3051 Scientific Methods in Archaeology 3 and modules up to the value of 60 credits from the Level 3 Archaeology modules listed above. If modules to the value of 60 credits or more in Archaeology are taken, then ARCH3371 Archaeology Dissertation (20 Credits) must be taken, unless a Dissertation module is being taken in the other subject. |

## BIOLOGY MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS

| | | | |
|---|---|---|---|
| **Level 1 Modules** | Diversity of Life | BIOL1121 | 20 |
| | Cells, Tissues and Systems | BIOL1081 | 20 |
| | Introduction to Plants, Animals and Ecology | BIOL1131 | 20 |
| | Genetics | BIOL1111 | 20 |
| | Molecular Basis of Life | BIOL1071 | 20 |
| | Chemistry for the Biosciences | BIOL1141 | 20 |

| | | | |
|---|---|---|---|
| **Level 2** | Animal Physiology | BIOL2351 | 20 |
| **Modules** | Behaviour | BIOL2391 | 20 |
| | Biochemistry | BIOL2381 | 20 |
| | Cell Structure and Function | BIOL2341 | 20 |
| | Development | BIOL2361 | 20 |
| | Ecology | BIOL2411 | 20 |
| | Evolutionary Biology | BIOL2331 | 20 |
| | Plant Physiology | BIOL2401 | 20 |
| | Molecular Biology | BIOL2371 | 20 |
| **Level 3** | Ageing | BIOL3501 | 20 |
| **Modules** | Behavioural and Evolutionary Ecology | BIOL3561 | 20 |
| | Biology into Schools | BIOL3431 | 20 |
| | Biotechnology | BIOL3511 | 20 |
| | Cell Architecture | BIOL3481 | 20 |
| | Conservation Biology | BIOL3551 | 20 |
| | Genes and Development | BIOL3521 | 20 |
| | Global Change Biology | BIOL3541 | 20 |
| | Literature Review | BIOL3451 | 20 |
| | Stress and Responses to the Environment | BIOL3491 | 20 |
| | Stem Cells and Tissue Engineering | BIOL3531 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING BIOLOGY**

There are two routes through Biological Sciences: the Whole Organisms route and the Cell Biology route.

WHOLE ORGANISMS ROUTE:

**Level 1** BIOL1121 Diversity of Life and BIOL1131 Introduction to Plants, Animals and Ecology

**Level 2** At least two Level 2 modules must be taken. Students taking just two modules will take the following:

BIOL2331 Evolutionary Biology
BIOL2411 Ecology

Students taking three Level 2 modules will take BIOL2391 Behaviour in addition to the above two modules.

**Level 3** If two modules are taken they must be picked from:

BIOL3561 Behavioural and Evolutionary Biology
BIOL3551 Conservation Biology
BIOL3541 Global Change Biology

If three modules are taken they must be picked from:

BIOL3561 Behavioural and Evolutionary Biology
BIOL3431 Biology into Schools
BIOL3551 Conservation Biology
BIOL3541 Global Change Biology
BIOL3451 Literature Review
but BIOL3451 Literature Review and BIOL3431 Biology into Schools cannot be taken together.

If four or five modules are taken they must be picked from:

BIOL3561 Behavioural and Evolutionary Biology
BIOL3431 Biology into Schools
BIOL3551 Conservation Biology
BIOL3541 Global Change Biology
BIOL3451 Literature Review

CELL BIOLOGY ROUTE

**Level 1** Students taking Biology in conjunction with Chemistry should take BIOL1111 Genetics and BIOL1071 Molecular Basis of Life.

| | |
|---|---|
| | Other students should take BIOL1081 Cells, Tissues and Systems and BIOL1111 Genetics |
| **Level 2** | At least two Level 2 modules must be taken. Students taking a Joint Honours degree in Biology and Chemistry will take:<br><br>BIOL2351 Animal Physiology<br>BIOL2401 Plant Physiology<br>BIOL2381 Biochemistry<br><br>Other students (including those not taking a 3:3 split in Biology and Chemistry) taking just two modules will take the following:<br><br>BIOL2371 Molecular Biology<br>BIOL2341 Cell Structure and Function<br><br>Other students taking three Level 2 modules will take BIOL2361 Development in addition to the above two modules.<br><br>Other students taking four Level 2 modules will take BIOL2361 Development and (either BIOL2351 Animal Physiology or BIOL2401 Plant Physiology) or (BIOL2351 Animal Physiology and BIOL2401 Plant Physiology). |
| **Level 3** | Students following a B.Sc. Joint Honours degree with Chemistry should take:<br><br>BIOL2371 Molecular Biology<br>BIOL3491 Stress and Responses to the Environment<br>and (BIOL3511 Biotechnology or BIOL3451 Literature Review)<br><br>For other students, if two modules are taken they should be:<br><br>BIOL3501 Ageing<br>BIOL3481 Cell Architecture<br><br>If three modules are taken they should be picked from:<br><br>BIOL3501 Ageing<br>BIOL3431 Biology into Schools<br>BIOL3481 Cell Architecture<br>BIOL3521 Genes and Development<br>BIOL3451 Literature Review<br>BIOL3491 Stress and Responses to the Environment<br>BIOL3531 Stem Cells and Tissue Engineering<br>but BIOL3451 Literature Review and BIOL3431 Biology into Schools cannot be taken together.<br><br>If four or five modules are taken they should be picked from:<br><br>BIOL3501 Ageing<br>BIOL3431 Biology into Schools<br>BIOL3481 Cell Architecture<br>BIOL3521 Genes and Development<br>BIOL3451 Literature Review<br>BIOL3491 Stress and Responses to the Environment<br>BIOL3531 Stem Cells and Tissue Engineering |

**BUSINESS MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1 Modules** | Enterprise and Business Development * | BUSI1121 | 20 |
| | Introduction to Entrepreneurship | BUSI1111 | 20 |
| | Introduction to Management | BUSI1011 | 20 |
| | Business Accounting and Finance | ECON1041 | 20 |
| | Economic Methods | ECON1021 | 20 |
| | Elements of Economics | ECON1011 | 20 |
| **Level 2 Modules** | Marketing Management | BUSI2111 | 20 |
| | Organisational Behaviour | BUSI2121 | 20 |

| | | | |
|---|---|---|---|
| **Level 3** | Asia and the Pacific Rim | BUSI3041 | 20 |
| **Modules** | Dissertation in Business (20 Credits) | BUSI3091 | 20 |
| | Dissertation in Business (40 Credits) | BUSI3122 | 40 |
| | Marketing Research | BUSI3141 | 20 |
| | Public Administration and Management * | BUSI3031 | 20 |

* Not available in 2010-2011.

**REQUIREMENTS FOR JOINT HONOURS DEGREES INVOLVING BUSINESS**

| | |
|---|---|
| **Level 1** | BUSI1011 Introduction to Management and ECON1011 Elements of Economics should be taken. |
| **Level 2** | Modules taken from the Level 2 Business module list above. |
| **Level 3** | Modules taken from the Level 3 Business module list above. |

**CHEMISTRY MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1** | Core Chemistry 1A | CHEM1012 | 40 |
| **Modules** | Core Chemistry 1B | CHEM1022 | 40 |
| | Molecules in Action | CHEM1061 | 20 |
| **Level 2** | Biological Chemistry | CHEM2051 | 20 |
| **Modules** | Chemistry of the Elements | CHEM2021 | 20 |
| | Computational Chemistry | CHEM2061 | 20 |
| | Core Chemistry 2 | CHEM2012 | 40 |
| | Properties of Molecules | CHEM2041 | 20 |
| | Ring Chemistry | CHEM2031 | 20 |
| **Level 3** | Advanced Computational Chemistry | CHEM3071 | 20 |
| **Modules** | Advanced Organic Chemistry | CHEM3031 | 20 |
| | Chemistry and Society | CHEM3061 | 20 |
| | Core Chemistry 3 | CHEM3012 | 40 |
| | Inorganic Concepts and Applications | CHEM3021 | 20 |
| | Materials Chemistry | CHEM3051 | 20 |
| | Molecules and their Interactions | CHEM3041 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING CHEMISTRY**

| | |
|---|---|
| **Level 1** | CHEM1012 Core Chemistry 1A |
| **Level 2** | CHEM2012 Core Chemistry 2 |
| | Students taking at least 60 credits of Chemistry must take at least one of CHEM2021 Chemistry of the Elements, CHEM2031 Ring Chemistry or CHEM2041 Properties of Molecules. |
| **Level 3** | CHEM3012 Core Chemistry 3. Any other modules can be selected from the Level 2 or Level 3 Chemistry modules listed above. |

**COMPUTER SCIENCE MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1** | Computer Systems | COMP1071 | 20 |
| **Modules** | Data Structures | COMP1081 | 20 |
| | Formal Aspects of Computer Science | COMP1021 | 20 |
| | Introduction to Programming | COMP1011 | 20 |
| **Level 2** | Computer Systems II | COMP2161 | 20 |
| **Modules** | Programming and Reasoning | COMP2171 | 20 |
| | Software Applications | COMP2071 | 20 |
| | Software Engineering | COMP2092 | 40 |
| | Systems Thinking | COMP2111 | 20 |
| | Theory of Computation | COMP2181 | 20 |
| | Web Engineering | COMP2091 | 20 |
| **Level 3** | Advanced Artificial Intelligence (20 Credits) | COMP3311 | 20 |
| **Modules** | Advanced Software Applications and Methods(20 Credits) | COMP3331 | 20 |
| | Advanced Software Engineering (20 Credits) | COMP3221 | 20 |
| | Advanced Software Engineering (40 Credits) | COMP3152 | 40 |
| | Advanced Theory of Computation (20 Credits) | COMP3341 | 20 |
| | Advanced Theory of Computation (40 Credits) | COMP3342 | 40 |

| | | | |
|---|---|---|---|
| | Computer Science Project | COMP3012 | 40 |
| | Software Engineering Project | COMP3282 | 40 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING COMPUTER SCIENCE**

| | |
|---|---|
| **Level 1** | COMP1011 Introduction to Programming<br>COMP1021 Formal Aspects of Computer Science |
| **Level 2** | Modules selected from the Level 2 Computer Science modules listed above. |
| **Level 3** | Modules selected from the Level 2 and Level 3 Computer Science modules listed above. |

**EARTH SCIENCES MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1** | Earth and Environment | GEOL1041 | 20 |
| **Modules** | Earth History and Life | GEOL1031 | 20 |
| | Earth Materials | GEOL1021 | 20 |
| | Field Studies | GEOL1051 | 20 |
| | Further Mathematics in Geoscience | GEOL1081 | 20 |
| | How the Earth Works | GEOL1011 | 20 |
| | Mathematical Methods in Geosciences | GEOL1061 | 20 |
| | The Oceans | GEOL1071 | 20 |
| **Level 2** | Earth Visualisation L2 | GEOL2221 | 20 |
| **Modules** | Fieldwork (Environmental) | GEOL2201 | 20 |
| | Fieldwork (Geophysical) | GEOL2241 | 20 |
| | Fieldwork (Geological) | GEOL2191 | 20 |
| | Fossils and Dynamic Stratigraphy of the British Isles | GEOL2051 | 20 |
| | Geophysical Methods in Geology | GEOL2081 | 20 |
| | Igneous and Metamorphic Geochemistry and Petrology | GEOL2231 | 20 |
| | Sedimentary Environments | GEOL2031 | 20 |
| | Structural Geology and Tectonics | GEOL2011 | 20 |
| | Water and Climate | GEOL2171 | 20 |
| **Level 3** | Dissertation | GEOL3022 | 40 |
| **Modules** | Dynamic Earth I | GEOL3011 | 20 |
| | Dynamic Earth II | GEOL3181 | 20 |
| | Earth Science into Schools | GEOL3251 | 20 |
| | Earth Structure and Dynamics | GEOL3151 | 20 |
| | Earth System and Climate | GEOL3231 | 20 |
| | Environmental Geochemistry | GEOL3041 | 20 |
| | Evolutionary Palaeobiology | GEOL3071 | 20 |
| | Magmatism | GEOL3051 | 20 |
| | Modelling Earth Processes | GEOL3261 | 20 |
| | Petroleum Geophysics | GEOL3221 | 20 |
| | Rheology and Deformation Processes | GEOL3091 | 20 |
| | Sedimentary and Petroleum Systems | GEOL3031 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING EARTH SCIENCES**

There are two routes through Earth Sciences: the Geological Sciences route and the Geophysics route.

GEOLOGICAL SCIENCES ROUTE:

| | |
|---|---|
| **Level 1** | GEOL1011 How the Earth Works<br>GEOL1021 Earth Materials<br><br>To obtain accreditation the above two modules must be taken in addition GEOL1051 Field Studies. GEOL1041 Earth and the Environment must be taken at either Level 1 or Level 2. |
| **Level 2** | Modules selected from the Level 1 and Level 2 Earth Sciences modules listed above.<br><br>To obtain accreditation modules to the value of 60 credits or more must be taken and these must include GEOL2191 Fieldwork (Geological), GEOL1041 Earth and the Environment if the latter module has not already been studied. |
| **Level 3** | Modules selected from the Level 3 Earth Sciences modules listed above. If modules to the value of 60 credits or more are taken, one 20 credit module can be at Level 2. |

To obtain accreditation GEOL3022 Dissertation must be taken and modules to the value of at least 40 credits must be taken from the Level 3 Earth Sciences list above.

Accreditation note: the above specified pathway within Natural Sciences has been accredited by the Geological Society for a period of six years with effect from March 2010, subject to students choosing modules that constitute an approved pathway as indicated above.

GEOPHYSICS ROUTE:

| | |
|---|---|
| **Level 1** | GEOL1011 How the Earth Works<br>GEOL1021 Earth Materials<br>(MATH1561 Single Mathematics A and MATH1571 Single Mathematics B) or MATH1551 Mathematics for Scientists and Engineers or MATH1012 Core Maths A or GEOL1061 Mathematical Methods in Geosciences |
| **Level 2** | All students take at least GEOL2081 Geophysical Methods in Geology and GEOL2241 Fieldwork (Geophysical) |
| **Level 3** | Modules selected from:<br>GEOL3022 Dissertation<br>GEOL3221 Petroleum Geophysics<br>GEOL3151 Earth Structure and Dynamics |

**ECONOMICS MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1 Modules** | Business Accounting and Finance | ECON1041 | 20 |
| | Economic Methods | ECON1021 | 20 |
| | Elements of Economics | ECON1011 | 20 |
| | Introduction to Environmental Economics | ECON1051 | 20 |
| | The World Economy | ECON1071 | 20 |
| **Level 2 Modules** | Business Competition | ECON2081 | 20 |
| | Corporate Finance | ECON2101 | 20 |
| | Economic Data Analysis | ECON2061 | 20 |
| | Economic Principles I: Macroeconomics | ECON2011 | 20 |
| | Economic Principles II: Microeconomics | ECON2021 | 20 |
| | Economics of Social Policy | ECON2091 | 20 |
| | European Economics | ECON2071 | 20 |
| | Intermediate Methods for Economics and Finance | ECON2121 | 20 |
| **Level 3 Modules** | Advanced Macroeconomic Theory | ECON3211 | 20 |
| | Advanced Microeconomic Theory | ECON3201 | 20 |
| | Applied Econometrics | ECON3011 | 20 |
| | Development Economics | ECON3171 | 20 |
| | Dissertation in Economics | ECON3012 | 40 |
| | Financial Theory and Corporate Policy | ECON3251 | 20 |
| | History of Economic Thought | ECON3051 | 20 |
| | Industrial Organisation | ECON3061 | 20 |
| | International Economics | ECON3071 | 20 |
| | Labour Economics | ECON3081 | 20 |
| | Monetary Economics | ECON3111 | 20 |
| | Public Economics | ECON3191 | 20 |
| | Security Investment Analysis | ECON3241 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING ECONOMICS**

| | |
|---|---|
| **Level 1** | ECON1011 Elements of Economics and ECON1021 Economic Methods, unless any Level 1 Maths modules are taken in which case ECON1031 The British Economy is taken in place of ECON1021 Economic Methods. |
| **Level 2** | ECON2011 Economic Principles I: Macroeconomics<br>ECON2021 Economic Principles II: Microeconomics<br>Any further modules selected from the Level 2 Economics modules listed above. |
| **Level 3** | Modules selected from the Level 3 Economics modules listed above. If modules to the value of 60 credits or more are taken, one 20 credit module can be at Level 2. |

**GEOGRAPHY MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1 Modules** | Cities | GEOG1211 | 20 |
| | Environment and Society | GEOG1061 | 20 |

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|---|---|---|---|
| | Human Geography: Space and Place in a Changing World | GEOG1071 | 20 |
| | Introduction to Geographical Methods | GEOG1222 | 20 |
| | Physical Geography: Earth Systems Science | GEOG1081 | 20 |
| **Level 2** | Development, Society and the Environment | GEOG2541 | 20 |
| **Modules** | Environmental Processes and Management | GEOG2551 | 20 |
| | Fluvial Systems | GEOG2521 | 20 |
| | GIS and Remote Sensing | GEOG2591 | 20 |
| | Glaciers and Glaciation | GEOG2531 | 20 |
| | Global Climate Change | GEOG2571 | 20 |
| | Mountain Landscapes | GEOG2611 | 20 |
| | Political Geography | GEOG2581 | 20 |
| | Reconstructing Environmental Change | GEOG2601 | 20 |
| | Scientific Research in Geography | GEOG2462 | 40 |
| | Social and Cultural Geography | GEOG2561 | 20 |
| | Social Research in Geography | GEOG2472 | 40 |
| | Theory and Concepts in Contemporary Human Geography | GEOG2621 | 20 |
| | Urban Geography | GEOG2511 | 20 |
| **Level 3** | Dissertation (40 Credits) in Geography A | GEOG3232 | 40 |
| **Modules** | Dissertation (40 Credits) in Geography B | GEOG3432 | 40 |
| | Environment, Culture and the Political Imaginary | GEOG3681 | 20 |
| | Environmental Processes of Change: Field Case Studies | GEOG3491 | 20 |
| | Environmental Remote Sensing | GEOG3261 | 20 |
| | Geographies of Health and Healthcare | GEOG3631 | 20 |
| | Geographies of Transformation | GEOG3561 | 20 |
| | Hazard and Risk | GEOG3621 | 20 |
| | Material Geographies * | GEOG3441 | 20 |
| | Oceans Past and Present | GEOG3641 | 20 |
| | People, Participation and Place | GEOG3671 | 20 |
| | Politics/Space – Drawing Lines, Writing the World | GEOG3661 | 20 |
| | River Dynamics | GEOG3461 | 20 |
| | Sea-Level Change and Coastal Evolution | GEOG3191 | 20 |
| | Specialised Aspects of Human Geography | GEOG3431 | 20 |
| | Specialised Aspects of Physical Geography | GEOG3431 | 20 |
| | Territory and Geopolitics* | GEOG3581 | 20 |
| | The Quaternary of Glaciated Regions | GEOG3511 | 20 |
| | Urban Transformations in the New Europe | GEOG3501 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING GEOGRAPHY**

**Level 1**

Two 20 credit modules from the following:
GEOG1081 Physical Geography
GEOG1071 Human Geography
GEOG1222 Introduction to Geographical Methods
GEOG1061 Environment & Society
GEOG1211 Cities

**Level 2**

Students taking a Joint Honours degree within Natural Sciences must take either GEOG2462 Scientific Research in Geography or (GEOG2472 Social Research in Geography and GEOG2621 Theory and Concepts in Contemporary Human Geography).

Students taking a Joint Honours degree within Natural Sciences who take GEOG2462 Scientific Research in Geography must select between one and three modules from the following:

GEOG2551 Environmental Processes and Management
GEOG2521 Fluvial Systems
GEOG2591 GIS and Remote Sensing
GEOG2531 Glaciers and Glaciation
GEOG2571 Global Climate Change
GEOG2611 Mountain Landscapes
GEOG2601 Reconstructing Environmental Change

Students taking a Joint Honours degree within Natural Sciences who take (GEOG2472 Social Research in Geography and GEOG2621 Theory and Concepts in Contemporary Human Geography) and must select one or two modules from the following:

GEOG2541 Development, Society and the Environment
GEOG2551 Environmental Processes and Management
GEOG2591 GIS and Remote Sensing
GEOG2581 Political Geography
GEOG2561 Social and Cultural Geography
GEOG2511 Urban Geography

**Level 3**

Students taking a Joint Honours degree within Natural Sciences who took GEOG2462 Scientific Research in Geography in Year 2 should select modules from:

GEOG3432 Dissertation in Geography B – Double
GEOG3611 Environmental Hazards and Risks*
GEOG3491 Environmental Processes of Change – Field Case Studies
GEOG3261 Environmental Remote Sensing
GEOG3621 Hazard and Risk
GEOG3641 Oceans Past and Present
GEOG3461 River Dynamics
GEOG3191 Sea-Level Change and Coastal Evolution
GEOG3431 Specialized Aspects of Physical Geography
GEOG3431 The Quaternary of Glaciated Regions

Students taking a Joint Honours degree within Natural Sciences who took GEOG2472 Social Research in Geography Year 2 should select modules from:

GEOG3232 Dissertation in Geography A – Double
GEOG3471 Contested Natures *
GEOG3681 Environment, Culture and the Politial Imaginary
GEOG3261 Environmental Remote Sensing
GEOG3631 Geographies of Health and Social Care
GEOG3561 Geographies of Transformation
GEOG3621 Hazard and Risk
GEOG3441 Material Geographies*
GEOG3671 People, Participation and Place
GEOG3661 Politics/Space – Drawing Lines, Writing the World
GEOG3431 Specialized Aspects of Human Geography
GEOG3581 Territory and Geopolitics*
GEOG3501 Urban Change in Europe

* Not available in 2010-2011.

**MATHEMATICS MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1 Modules** | Core Mathematics A | MATH1012 | 40 |
| | Core Mathematics B1 | MATH1051 | 20 |
| | Core Mathematics B2 | MATH1041 | 20 |
| | Data Analysis, Modelling and Simulation | MATH1711 | 20 |
| | Discrete Mathematics | MATH1031 | 20 |
| | Maths for Engineers and Scientists | MATH1551 | 20 |
| | Single Mathematics A | MATH1561 | 20 |
| | Single Mathematics B | MATH1571 | 20 |
| | Statistics | MATH1541 | 20 |
| **Level 2 Modules** | Algebra II | MATH2581 | 20 |
| | Analysis in Many Variables II | MATH2031 | 20 |
| | Codes and Actuarial Mathematics II | MATH2031 | 20 |
| | Codes and Geometric Topology II | MATH2141 | 20 |
| | Complex Analysis II | MATH2011 | 20 |
| | Contours and Actuarial Mathematics II | MATH2171 | 20 |
| | Elementary Number Theory and Cryptography II | MATH2591 | 20 |
| | Linear Algebra II | MATH2021 | 20 |
| | Mathematical Physics II | MATH2071 | 20 |
| | Numerical Analysis II | MATH2051 | 20 |
| | Probability and Actuarial Mathematics II | MATH2161 | 20 |
| | Probability and Geometric Topology II | MATH2151 | 20 |
| | Statistical Concepts II | MATH2041 | 20 |

**Level 3**
**Modules**

**Modules running 2010-2011**

| | | |
|---|---|---|
| Approximation Theory and Solutions of ODEs III | MATH3081 | 20 |
| Bayesian Statistics III | MATH3341 | 20 |
| Elliptic Functions III | MATH3221 | 20 |
| Geometry III | MATH3201 | 20 |
| Number Theory III | MATH3031 | 20 |
| Probability III | MATH3211 | 20 |
| Solitons III | MATH3231 | 20 |
| Statistical Mechanics III | MATH3351 | 20 |

**Modules running 2011-2012**

| | | |
|---|---|---|
| Algebraic Geometry III | MATH3321 | 20 |
| Analysis III | MATH3011 | 20 |
| Bayesian Methods III | MATH3311 | 20 |
| Continuum Mechanics III | MATH3101 | 20 |
| General Relativity III | MATH3331 | 20 |
| Representation Theory and Modules III | MATH3191 | 20 |
| Stochastic Processes III | MATH3251 | 20 |

**Modules available every year**

| | | |
|---|---|---|
| Communicating Mathematics III | MATH3131 | 20 |
| Decision Theory III | MATH3071 | 20 |
| Differential Geometry III | MATH3021 | 20 |
| Dynamical Systems III | MATH3091 | 20 |
| Electromagnetism III | MATH3181 | 20 |
| Galois Theory III | MATH3041 | 20 |
| Mathematical Biology III | MATH3171 | 20 |
| Mathematical Finance III | MATH3301 | 20 |
| Mathematics Teaching III | MATH3121 | 20 |
| Operations Research III | MATH3141 | 20 |
| Partial Differential Equations III | MATH3291 | 20 |
| Quantum Mechanics III | MATH3111 | 20 |
| Statistical Methods III | MATH3051 | 20 |
| Topology III | MATH3281 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING MATHEMATICS**

**Level 1** MATH1012 Core Mathematics A and MATH1051 Core Mathematics B1.

**Level 2** If the other subject is not Physics any other modules selected from the Level 2 Mathematics modules listed above.
If the other subject is Physics at least MATH2021 Linear Algebra II, MATH2031 Analysis in Many Variables II and MATH2011 Complex Analysis II must be taken.

**Level 3** Students select modules from the Level 3 Mathematics modules listed above. If Maths modules to the value of 60 or 80 credits are taken one 20 credit module can be at Level 2.

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING STATISTICS**

**Level 1** MATH1012 Core Mathematics A and MATH1541 Statistics.

**Level 2** At least MATH2021 Linear Algebra II and MATH2041 Statistical Concepts II.

**Level 3** MATH3051 Statistical Methods III and at least two from MATH3071 Decision Theory III, MATH3141 Operations Research III, MATH3131 Communicating Mathematics III.

**PHILOSOPHY MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1** | Ethics and Values | PHIL1011 | 20 |
| **Modules** | Introduction to the History and Theory of Medicine | PHIL1051 | 20 |
| | Introduction to the History and Philosophy of Science | PHIL1081 | 20 |
| | Introduction to Logic | PHIL1031 | 20 |
| | Knowledge and Reality | PHIL1021 | 20 |

| | | | |
|---|---|---|---|
| | Philosophy of Science | PHIL1061 | 20 |
| | Reading Philosophy | PHIL1041 | 20 |
| **Level 2** | Ancient Philosophy West and East | PHIL2161 | 20 |
| **Modules** | Biomedical Ethics Past and Present | PHIL2051 | 20 |
| | Modern Philosophy I | PHIL2031 | 20 |
| | Moral Theory | PHIL2041 | 20 |
| | Philosophical Logic | PHIL2021 | 20 |
| | Philosophy of Mind | PHIL2011 | 20 |
| | Philosophy of Religion | PHIL2091 | 20 |
| | Philosophy of the Sciences | PHIL2151 | 20 |
| | Political Philosophy | PHIL2081 | 20 |
| | Science and Religion | PHIL2071 | 20 |
| | Theory, Literature and Society | PHIL2131 | 20 |
| **Level 3** | 20th Century European Philosophy | PHIL3051 | 20 |
| **Modules** | Aesthetics | PHIL3031 | 20 |
| | Applied Ethics | PHIL3071 | 20 |
| | Gender, Film and Society | PHIL3141 | 20 |
| | Issues in Contemporary Ethics | PHIL3131 | 20 |
| | Language and Mind | PHIL3061 | 20 |
| | Metaphysics | PHIL3171 | 20 |
| | Modern Philosophy II | PHIL3011 | 20 |
| | Philosophical Issues in Contemporary Science | PHIL3021 | 20 |
| | Philosophy Long Dissertation | PHIL3112 | 40 |
| | Philosophy Short Dissertation | PHIL3101 | 20 |
| | History of the Body | HEAS3001 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING PHILOSOPHY**

| | |
|---|---|
| **Level 1** | Two 20 credit modules selected from the Level 1 Philosophy modules listed above. |
| **Level 2** | Modules selected from the Level 2 Philosophy modules listed above. |
| **Level 3** | Modules selected from the Level 3 Philosophy modules listed above. If modules to the value of 60 credits or more are taken, one 20 credit module can be at Level 2. |

**PHYSICS MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1** | Discovery Skills in Physics | PHYS1101 | 20 |
| **Modules** | Foundations of Physics 1 | PHYS1122 | 40 |
| | Introduction to Astronomy | PHYS1081 | 20 |
| | Maths Toolkit for Scientists | PHYS1141 | 20 |
| **Level 2** | Computational Physics and Electronics | PHYS2571 | 20 |
| **Modules** | Foundations of Physics 2 | PHYS2511 | 20 |
| | Laboratory Skills and Practice | PHYS2551 | 20 |
| | Mathematical Methods in Physics | PHYS2521 | 20 |
| | Stars and Galaxies | PHYS2541 | 20 |
| | Thermal and Condensed Matter Physics | PHYS2531 | 20 |
| **Level 3** | Astrophysics | PHYS3541 | 20 |
| **Modules** | Condensed Matter Physics | PHYS3531 | 20 |
| | Foundations of Physics 3 | PHYS3522 | 40 |
| | Key Skills A | PHYS3561 | 20 |
| | Key Skills B | PHYS3571 | 20 |
| | Laboratory Project | PHYS3601 | 20 |
| | Mathematics Workshop | PHYS3591 | 20 |
| | Team Project | PHYS3581 | 20 |
| | Theoretical Physics | PHYS3551 | 20 |
| | Physics into Schools | PHYS3611 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING ASTRONOMY**

| | |
|---|---|
| **Level 1** | PHYS1101 Discovery Skills in Physics<br>MATH1551 Mathematics for Engineers and Scientists<br>PHYS1122 Foundations of Physics 1 |
| **Level 2** | PHYS2541 Stars and Galaxies and PHYS2551 Laboratory Skills and Practice plus one other 20 credit module of Physics at Level 1 or Level 2 excluding PHYS1081 Introduction to Astronomy. |
| **Level 3** | At least PHYS3541 Astrophysics and PHYS3601 Laboratory Project. |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING PHYSICS**

**Level 1** PHYS1122 Foundations of Physics 1
(MATH1561 Single Mathematics A and MATH1571 Single Mathematics B) or MATH1012 Core Mathematics A

**Level 2** For a Joint Honours degree not involving Mathematics, the following must be taken PHYS2511 Foundations of Physics 2, PHYS2521 Mathematical Methods in Physics and PHYS1101 Discovery Skills in Physics if not taken previously. The module PHYS2551 Laboratory Skills and Practice is also required for these degrees, but may be taken in either Level 2 or Level 3.

For a Joint Honours degree with Mathematics, PHYS2511 Foundations of Physics 2 , PHYS1101 Discovery Skills in Physics (if not taken previously) and at least one of PHYS2531 Thermal and Condensed Matter Physics, PHYS2541 Stars and Galaxies, PHYS2551 Laboratory Skills and Practice must be taken. The modules PHYS2551 Laboratory Skills and Practice and PHYS2531 Thermal and Condensed Matter Physics must be taken in either Level 2 or Level 3.

If the other subject is Mathematics, PHYS2521 Mathematical Methods in Physics cannot be taken.

**Level 3** PHYS3522 Foundations of Physics 3 must be taken. Any further modules must be selected from the Level 3 Physics modules listed above. If PHYS2551 Laboratory Skills and Practice was not taken in Level 2 it must be taken in Level 3.

For a Joint Honours Mathematics and Physics degree PHYS2531 Thermal and Condensed Matter Physics must be taken in either Level 2 or Level 3.

Accreditation note: Joint Honours degrees of the type B.Sc. 'A and Physics', where A can be Anthropology, Chemistry, Computer Science, Earth Sciences, Economics, Mathematics and Philosophy, are accredited by the Institute of Physics for those students who entered the University before February 2009.

**PSYCHOLOGY MODULES AVAILABLE TO NATURAL SCIENCES STUDENTS**

| | | | |
|---|---|---|---|
| **Level 1** | Introduction to Psychological Research | PSYC1062 | 40 |
| **Modules** | Introduction to Psychology I | PSYC1071 | 20 |
| | Introduction to Psychology II | PSYC1081 | 20 |
| **Level 2** | Individual Differences and Abnormal Psychology | PSYC2071 | 20 |
| **Modules** | Brain Processes of Cognition and Perception | PSYC2111 | 20 |
| | Memory and Language | PSYC2081 | 20 |
| **Level 3** | Animal Behaviour: Learning, Cognition and Ethology | PSYC3201 | 20 |
| **Modules** | Cognitive Psychology | PSYC3151 | 20 |
| | Developmental Psychology | PSYC3031 | 20 |
| | Emotion and Social Cognition | PSYC3171 | 20 |
| | Neuropsychology | PSYC3011 | 20 |
| | Psychology Project and Statistics~ | PSYC3041 | 20 |
| | Social Psychology | PSYC3081 | 20 |
| | The Architecture of Vision | PSYC3181 | 20 |
| | The Evolution of Human Behaviour | PSYC3141 | 20 |
| | Advanced Applied Psychology | PSYS3211 | 20 |
| | Applied Development Psychology | PSYS3171 | 20 |
| | Clinical Cognitive Neuroscience | PSYS3191 | 20 |
| | Forensic Psychology | PSYS3241 | 20 |
| | The Science of Consciousness | PSYS3161 | 20 |

**REQUIREMENTS FOR BSc JOINT HONOURS DEGREES INVOLVING PSYCHOLOGY**

**Level 1** PSYC1062 Introduction to Psychological Research and normally PSYC1071 Introduction to Psychology I. PSYC1081 Introduction to Psychology II can be taken if PSYC1071 Introduction to Psychology I does not fit in the timetable, but for a BPS accredited Joint Honours 'and' or 'Psychology with' degree, PSYC1081 Introduction to Psychology II can only be taken if students have Biology at A Level with grade B or higher (or the equivalent in other qualifications).

**Level 2** At least:
PSYC2081 Memory and Language

PSYC2111 Brain Processes of Cognition and Perception
PSYC2021 Social and Developmental Psychology.

**Level 3** For a Joint Honours degree, PSYC3041 Psychology Project and Statistics~, PSYC2071 Individual Differences and Abnormal Psychology (if not taken previously) and Psychology module(s) to the value of either 20 or 40 credits from the Level 3 Psychology list above must be taken.

~ This module must be passed at 40% or above. A mark of 30-39% cannot be compensated.

Accreditation note: The specified pathways are accredited from 2008 - 2009 for five cohorts as conferring eligibility for Graduate Membership of The British Psychological Society with the Graduate Basis for Registration. A minimum of a second class honours degree to gain eligibility.

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