MSci NATURAL SCIENCES (FGC0)

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 Levels 1 and 2 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 and must include at least one subject in which Level 4 modules are available.

3. At Level 3 students take modules from at least two and no more than three subjects to a maximum of 80 credits per subject. The selection may include modules from outside the list of modules that make up the Natural Sciences programme to a maximum of 40 credits and must include at least one subject in which Level 4 modules are available.

4. At Level 4 students take modules from at least one and no more than three subjects to a maximum of 120 credits per subject and to include a research project to the value of at least 40 credits.

5. Within the Natural Sciences programme certain combinations of modules will be 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 an M.Sci. 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 M.Sci. in A and B within the Natural Sciences programme, students in Levels 2, 3 and 4 normally study modules from two subjects. Students must select between 160 and 200 credits from each of the two subjects during the second, third and fourth levels of the programme.

8. The degree certificate issued to successful students who have not taken an M.Sci. Joint Honours degree shall list all subjects in which they have taken at least 40 credits during the final three levels of the programme.

9. The MSci in Natural Sciences allows students to take modules from two or more subjects in a four year programme. The range of subjects is limited. Students are allowed to take modules from a single subject in the final year if they have the appropriate prerequisites.

10. The following MSci Joint Honours degrees are available:

MSci BIOLOGY AND CHEMISTRY

Programme offered at: Durham.

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

LEVEL 1 (Certificate)

1	Genetics	BIOL1111	20
2	Molecular Basis of Life	BIOL1071	20
3-4	Core 1A Chemistry	CHEM1012	40
5-6	Modules to the value of 40 credits chosen from any Board of Studies		

Note:
Students wishing to study for an accredited degree must choose Core Chemistry 1B (CHEM1022) in order to fulfil the laboratory attendance requirements of Royal Society of Chemistry.

LEVEL 2 (Diploma)

1-2	Core Chemistry 2	CHEM2012	40

3	Ring Chemistry		CHEM2031	20
4	Biochemistry		BIOL2381	20
5	Animal Physiology		BIOL2351	20
6	Plant Physiology		BIOL2401	20

Notes:
Students who fail to achieve the standard required under the Core Regulations for progression to Level 3 of the MSci in Biology and Chemistry but who achieve the standard required for progression to Level 3 of a Bachelors programme may progress to Level 3 of an appropriate degree within the BSc in Natural Sciences programme in the Honours or Ordinary stream in accordance with the Core Regulations;
A student who is qualified to progress from Level 2 to Level 3 of the MSci in Biology and Chemistry but wishes to transfer to Level 3 of an appropriate degree within the BSc in Natural Sciences programme shall be permitted to do so.

LEVEL 3 (Degree)

1	Bioactive Chemistry 3		CHEM3211	20
2	Biological Chemistry		CHEM2051	20
3	Advanced Organic Chemistry		CHEM3031	20
4	Molecular Biology		BIOL2371	20
5	Biotechnology		BIOL3511	20
6	Stress and Response to the Environment		BIOL3491	20

Notes:
Students whose achievement at the end of Level 3 does not qualify them to proceed to Level 4 may be awarded an appropriate degree within the BSc in Natural Sciences programme at either Honours or Ordinary level in accordance with the Core Regulations for the award of a Bachelors degree.

LEVEL 4 (Degree)

1	Research Skills		CHEM4081	20
2	Bioactive Chemistry 4		CHEM4211	20
3	Biomolecular Analysis		BIOL3471	20
4-6	EITHER	Bioactive Chemistry Research Project	CHEM4272	40
		Biochemistry Research Project (S)	BIOL4031	20
	OR	Bioactive Chemistry Research Project	CHEM4271	20
		Biochemistry Research Project (D)	BIOL4022	40

Notes:
This programme is accredited by the Royal Society of Chemistry until July 2008 as satisfying the academic requirements for the award of Chartered Chemist (CChem) for holders of first or second class honours degrees subject to the selection of modules as indicated above.
Students whose achievement at the end of Level 4 does not qualify them to be awarded the degree of MSci in Biology and Chemistry may be awarded an appropriate degree within the BSc in Natural Sciences programme with Honours in accordance with the Core Regulations for the award of a Bachelors degree.

MSci CHEMISTRY AND MATHEMATICS

Programme offered at: Durham.

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

LEVEL 1 (Certificate)

1-2	Core Chemistry 1A		CHEM1012	40
3-4	Core Mathematics A		MATH1012	40
5	Core Mathematics B1		MATH1051	20
6	EITHER	Core Mathematics B2	MATH1041	20
	OR	Fundamental Physics	PHYS1111	20

LEVEL 2 (Diploma)

1-2	Core Chemistry 2	CHEM2012	40
3	Properties of Molecules	CHEM2041	20
4	Linear Algebra II	MATH2021	20
5	Analysis of Many Variables II	MATH2031	20
6	Mathematical Physics II	MATH2071	20

Notes:
Students who fail to achieve the standard required under the Core Regulations for progression to Level 3 of the MSci in Chemistry and Mathematics but who achieve the standard required for progression to Level 3 of a Bachelors programme may progress to Level 3 of an appropriate degree within the BSc in Natural Sciences programme in the Honours or Ordinary stream in accordance with the Core Regulations;

A student who is qualified to progress from Level 2 to Level 3 of the MSci in Chemistry and Mathematics but wishes to transfer to Level 3 of an appropriate degree within the BSc in Natural Sciences programme shall be permitted to do so.

LEVEL 3 (Degree)

1	Chemical Physics 3	CHEM3411	20
2	Computational Chemistry	CHEM2061	20
3	Molecules and their Interactions	CHEM3041	20
4	Electromagnetism III	MATH3181	20
5	Quantum Mechanics III	MATH3111	20
6	One 20 credit module chosen from the Level 2 or Level 3 modules offered by the Department of Mathematical Sciences		

Notes:
Students whose achievement at the end of Level 3 does not qualify them to proceed to Level 4 may be awarded an appropriate degree within the BSc in Natural Sciences programme at either Honours or Ordinary level in accordance with the Core Regulations for the award of a Bachelors degree.

LEVEL 4 (Degree)
EITHER

1-3	Chemistry Research Project	CHEM4073	60
4	Research Skills	CHEM4081	20
5-6	Modules to the value of 40 credits chosen from the Level 4 modules offered by the Department of Mathematical Sciences		

OR

1	Chemical Physics 4		CHEM4411	20
2	EITHER	Chemistry of Materials	CHEM4451	20
	OR	Computational Chemical Physics 4	CHEM4471	20
3-4	Project IV		MATH4072	40
5-6	Modules to the value of 40 credits chosen from the Level 4 modules offered by the Department of Mathematical Sciences			

Notes:
Students whose achievement at the end of Level 4 does not qualify them to be awarded the degree of MSci in Chemistry and Mathematics may be awarded an appropriate degree within the BSc in Natural Sciences programme with Honours in accordance with the Core Regulations for the award of a Bachelors degree.

MSci CHEMISTRY AND PHYSICS

Programme offered at: Durham.

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

LEVEL 1 (Certificate)

1-2	Core Chemistry 1A		CHEM1012	40
3-4	Foundations of Physics 1		PHYS1122	40
5-6	EITHER	Core Mathematics A	MATH1012	40
	OR	Single Mathematics A	MATH1561	20
	AND	Single Mathematics B	MATH1571	20

LEVEL 2 (Diploma)

1-2	Core Chemistry 2	CHEM2012	40
3	Properties of Molecules	CHEM2041	20
4	Foundations of Physics 2	PHYS2511	20
5	Mathematical Methods in Physics	PHYS2521	20
6	Discovery Skills in Physics	PHYS1011	20

Notes:
Students who fail to achieve the standard required under the Core Regulations for progression to Level 3 of the MSci in Chemistry and Physics but who achieve the standard required for progression to Level 3 of a Bachelors programme may progress to Level 3 of an appropriate degree within the BSc in Natural Sciences programme in the Honours or Ordinary stream in accordance with the Core Regulations;
A student who is qualified to progress from Level 2 to Level 3 of the MSci in Chemistry and Physics but wishes to transfer to Level 3 of an appropriate degree within the BSc in Natural Sciences programme shall be permitted to do so.

LEVEL 3 (Degree)

1	Chemical Physics 3	CHEM3411	20
2	Computational Chemistry	CHEM2061	20
3	Molecules and their Interactions	CHEM3041	20
4-5	Foundations of Physics 3	PHYS3522	40
6	Laboratory Skills and Practice	PHYS2551	20

Notes:
Students whose achievement at the end of Level 3 does not qualify them to proceed to Level 4 may be awarded an appropriate degree within the BSc in Natural Sciences programme at either Honours or Ordinary level in accordance with the Core Regulations for the award of a Bachelors degree.

LEVEL 4 (Degree)
EITHER

1	EITHER	Chemistry of Materials	CHEM4451	20
	OR	Computational Chemical Physics 4	CHEM4471	20
2	Chemical Physics 4		CHEM4411	20
3-5	Project		PHYS4213	60
6	EITHER	Atomic and Optical Physics	PHYS4121	20
	OR	Theoretical Physics 4	PHYS4191	20

OR

1-3	Chemistry Research Project	CHEM4073	60
4	Research Skills	CHEM4081	20
5	Atomic and Optical Physics	PHYS4121	20
6	EITHER Theoretical Physics 4	PHYS4191	20
	OR Chemical Physics 4	CHEM4411	20
	OR Computational Chemical Physics 4	CHEM4471	20

Notes:
Students whose achievement at the end of Level 4 does not qualify them to be awarded the degree of MSci in Chemistry and Physics may be awarded an appropriate degree within the BSc in Natural Sciences programme with Honours in accordance with the Core Regulations for the award of a Bachelors degree.
** Not all these modules will necessarily be timetable compatible.
Accreditation note:
This programme is accredited by the Institute of Physics for five years from February 2009.

MSci E-SCIENCE AND PHYSICS

Programme offered at: Durham. Last entry October 2006

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

LEVEL 1 (Certificate)

1	Introduction to Programming	COMP1011	20
2	Formal Aspects of Computer Science	COMP1021	20
3-4	Core Mathematics A	MATH1012	40
5-6	Foundations of Physics 1	PHYS1122	40

LEVEL 2 (Diploma)

1-2	Software Engineering (40 Credits)	COMP2092	40
3	Core Mathematics B1	MATH2051	20
4	Analysis in Many Variables II	MATH2031	20
5	Foundations of Physics 2	PHYS2511	20
6	EITHER Stars and Galaxies	PHYS2541	20
	OR Thermal and Condensed Matter Physics	PHYS2531	20

Notes:
Students who fail to achieve the standard required under the Core Regulations for progression to Level 3 of the MSci in e-Science and Physics but who achieve the standard required for progression to Level 3 of a Bachelors programme may progress to Level 3 of an appropriate degree within the BSc in Natural Sciences programme in the Honours or Ordinary stream in accordance with the Core Regulations;
A student who is qualified to progress from Level 2 to Level 3 of the MSci in e-Science and Physics but wishes to transfer to Level 3 of an appropriate degree within the BSc in Natural Sciences programme shall be permitted to do so.

LEVEL 3 (Degree)

1-2	Foundations of Physics 3	PHYS3522	40
3	Integrative Module – e-Science and Physics	COMP3361	20
4	Numerical Analysis II	MATH2051	20

5	EITHER	Mathematical Biology III	MATH3171	20
	OR	Differential Geometry III	MATH3301	20
6	One 20 credit module chosen from: **			
	Advanced Software Engineering (20 Credits)		COMP3221	20
	Astrophysics		PHYS3541	20
	Condensed Matter Physics		PHYS3531	20
	Theoretical Physics		PHYS3551	20
	Stars and Galaxies		PHYS2541	20
	Thermal and Condensed Matter Physics		PHYS2531	20

Notes:
Students whose achievement at the end of Level 3 does not qualify them to proceed to Level 4 may be awarded an appropriate degree within the BSc in Natural Sciences programme at either Honours or Ordinary level in accordance with the Core Regulations for the award of a Bachelors degree.

LEVEL 4 (Degree)

1-3	Project		PHYS4213	60
4	Partial Differential Equations IV		MATH4041	20
5	EITHER	Mathematical Finance IV	MATH4181	20
	OR	Approximation Theory and Solution of ODEs IV	MATH4221	20
6	One 20 credit module chosen from: **			
	Advanced Astrophysics		PHYS4161	20
	Advanced Condensed Matter Physics		PHYS4151	20
	Advanced Theoretical Physics		PHYS4141	20
	Astrophysics 4		PHYS4131	20
	Atomic and Optical Physics		PHYS4121	20
	Condensed Matter Physics 4		PHYS4111	20
	Particle Theory		PHYS4181	20
	Theoretical Astronomy		PHYS4201	20
	Theoretical Physics 4		PHYS4191	20

Notes:
Students whose achievement at the end of Level 4 does not qualify them to be awarded the degree of MSci in e-Science and Physics may be awarded an appropriate degree within the BSc in Natural Sciences programme with Honours in accordance with the Core Regulations for the award of a Bachelors degree.
** Not all these modules will necessarily be timetable compatible.

MSci MATHEMATICS AND PHYSICS

Programme offered at: Durham.

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

LEVEL 1 (Certificate)

1-2	Foundations of Physics 1		PHYS1122	40
3-4	Core Mathematics A		MATH1012	40
5	Core Mathematics B1		MATH1051	20
6	EITHER	Core Mathematics B2	MATH1041	20
	OR	Discovery Skills in Physics	PHYS1101	20

Discovery Skills in Physics (PHYS1101) must be taken in either Level 1 or Level 2.

LEVEL 2 (Diploma)

1	Linear Algebra II		MATH2021	20
2	Analysis in Many Variables II		MATH2031	20
3	Complex Analysis II		MATH2011	20
4	Foundations of Physics 2		PHYS2511	20
5	Thermal and Condensed Matter Physics		PHYS2531	20
6	EITHER	Discovery Skills in Physics	PHYS1101	20
	OR	Laboratory Skills and Practice	PHYS2551	20

Laboratory Skills and Practice (PHYS2551) must be taken in either Level 2 or Level 3.
Notes:
Students who fail to achieve the standard required under the Core Regulations for progression to Level 3 of the MSci in Mathematics and Physics but who achieve the standards required for progression to Level 3 of a Bachelors programme may progress to Level 3 of an appropriate degree within the BSc in Natural Sciences programme in the Honours or Ordinary stream in accordance with the Core Regulations;
A student who is qualified to progress from Level 2 to Level 3 of the MSci in Mathematics and Physics but wishes to transfer to Level 3 of an appropriate degree within the BSc in Natural Sciences programme shall be

permitted to do so.

LEVEL 3 (Degree)

1-2	Foundations of Physics 3		PHYS3522	40
3	Laboratory Skills and Practice (*if not taken earlier*)		PHYS2551	20
	OR	Theoretical Physics	PHYS3551	20
	OR	Stars and Galaxies **	PHYS2541	20
4-6	Modules to the value of 60 credits chosen from List A below			

Either Theoretical Physics (PHYS3551) must be taken in Level 3 or Theoretical Physics 4 (PHYS4191) must be taken in Level 4.

LIST A **

(Lists A1 and A2 will be offered in alternate years, List A3 will run in both years)

List A1 (2010-2011)

Elliptic Functions III	MATH3221	20
Solitons III	MATH3231	20
Statistical Mechanics III	MATH3351	20

List A2 (2009-2010)

Algebraic Geometry III	MATH3321	20
Analysis III	MATH3011	20
Continuum Mechanics III	MATH3101	20
General Relativity III	MATH3331	20

List A3

Differential Geometry III	MATH3021	20
Dynamical Systems III	MATH3091	20
Electromagnetism III	MATH3181	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
Topology III	MATH3281	20

Notes:
Students whose achievement at the end of Level 3 does not qualify them to proceed to Level 4 may be awarded an appropriate degree within the BSc in Natural Sciences programme at either Honours or Ordinary level in accordance with the Core Regulations for the award of a Bachelors degree.

LEVEL 4 (Degree)

1-2	Modules to the value of 40 credits chosen from List B below				
3-6	EITHER		Mathematics Project	MATH4072	40
		AND	Modules to the value of 40 credits chosen from List C below		
	OR		Project	PHYS4213	60
		AND	One 20 credit module chosen from List C below		

LIST B **

(Lists B1 and B2 will be offered in alternate years, List B3 will run in both years)

List B1 (2010-2011)

Elliptic Functions IV	MATH4151	20
Solitons IV	MATH4121	20
Statistical Mechanics IV	MATH4231	20

List B2 (2009-2010)

Algebraic Geometry IV	MATH4011	20
Analysis IV	MATH4201	20
Continuum Mechanics IV	MATH4081	20
General Relativity IV	MATH4051	20

List B3

Advanced Quantum Theory IV	MATH4061	20
Algebraic Topology IV	MATH4161	20

Mathematical Finance IV	MATH4181	20
Riemannian Geometry IV	MATH4171	20

LIST C **

Advanced Condensed Matter Physics	PHYS4151	20
Advanced Theoretical Physics	PHYS4141	20
Particle Theory	PHYS4181	20
Theoretical Astronomy	PHYS4201	20
Atomic and Optical Physics	PHYS4121	20
Astrophysics 4	PHYS4131	20
Condensed Matter Physics 4	PHYS4111	20
Theoretical Physics 4	PHYS4191	20

Notes:
Students whose achievement at the end of Level 4 does not qualify them to be awarded the degree of MSci in Mathematics and Physics may be awarded an appropriate degree within the BSc in Natural Sciences programme with Honours in accordance with the Core Regulations for the award of a Bachelors degree.
** Not all these modules will necessarily be timetable compatible.
Accreditation note:
This programme is accredited by the Institute of Physics for five years from February 2009.

MSci NATURAL SCIENCES

This degree allows students to take modules from two or more subjects in a four year programme. The range of subjects is limited. Students are allowed to take modules from a single subject in the final year if they have the appropriate prerequisites.