



The University of
Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

MSci Environmental Science

Qualifying Year Course Handbook

2014-2015

Please note that all of the information given in this Student Course Handbook was correct at the time of going to press; Schools reserve the right to amend course structures or information and amend, substitute or withdraw modules detailed in this publication.

Comments or feedback on the contents of this handbook are welcome, and will be used in the revised edition for 2015-2016. Any comments concerning this publication should be addressed to Kathy Wilson (Learning and Teaching Manager) at the Sutton Bonington Campus or e-mail Kathy.Wilson@Nottingham.ac.uk.

This handbook is available in alternative formats. Please contact Kathy Wilson, contact details above, to request an alternative format.

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1 Dates for your diary

Term dates

Autumn Term

Monday 22 September 2014 – Friday 12 December 2014

Spring Term

Monday 12 January 2015 – Friday 27 March 2015

Summer Term

Monday 27 April 2015 – Friday 19 June 2015

Semester dates

Autumn Semester

Monday 22 September 2014 – Saturday 24 January 2015

Spring Semester

Monday 26 January 2015 – Friday 19 June 2015

Exam dates

Autumn semester

Monday 12 January 2015 to Saturday 24 January 2015 – including Saturday 17 January 2015

Spring semester

Monday 18 May 2015 to Friday 05 June 2015 – including Saturday 23 May and 30 May 2015

Late summer resits

17 August 2015 to Wednesday 26 August 2015 – excluding Saturday 22 August 2015

2 Course handbook

This Manual is designed to give you all the information you need to allow you to progress your studies at Nottingham. It describes the various procedures and practices that are in place which are designed to help you achieve your goals. From time to time these have to be changed to meet new requirements put upon us by the University and on occasions changes are made based on student opinion. Therefore at any time if you have a positive suggestion, which can bring about some improvement in what we do, please bring these to the attention of the Student Guild who are represented on a number of School Committees.

3 The School of Biosciences

The School of Biosciences is part of the Faculty of Science and is based mainly on the Sutton Bonington campus; the BSc/MSci Environmental Science and BSc Environmental Biology degrees are located at the University Park campus.

The School of Biosciences has over 80 academic members of staff, 895 undergraduate students and about 550 research and taught postgraduate students. Academic staff are allotted to one of 5 Divisions which reflect specific areas of teaching and research; Agricultural and Environmental Sciences, Animal Sciences, Food Sciences, Nutritional Sciences and Plant and Crop Sciences.

You can find full and detailed information about the School and its staff on our Website – www.nottingham.ac.uk/Biosciences.

4 Advice

One of the first people you will meet is your Personal Tutor. Your Personal Tutor will be a member of academic staff with whom you have regular meetings, sometimes as part of a group. Your Tutor is there to give you help and support in person as well as guidance in academic matters. You should make every effort to establish a good working relationship. Your Tutor will provide you with details of your exam performance and it is essential that you discuss your progress, in confidence, with him/her at regular intervals.

Here are a few pieces of free advice; they come from fellow undergraduate students and from academic staff who helped us prepare this document.

- Most lecturers teach at a faster pace than you may be used to from school or college.
- Develop good note taking skills early in your university career.
- Lectures are progressive, i.e. each one builds on the last. Missing lectures is therefore dangerous, as is ignoring things that you didn't fully understand at the time.
- Module Conveners may issue a book list. Check with academic staff and 2nd and 3rd year students which are the most valuable to buy. You may not be able to afford them all. Books on your reading lists can be borrowed from the Libraries.
- You should expect to work outside of class time. This may include reading, rewriting your notes, doing coursework, writing reports, etc.
- Don't be afraid of asking questions in lectures. Lecturers like to know that students are following what they are saying. The question you ask may be exactly what other students were wondering but were afraid to ask. Most lecturers will provide opportunities for questions. You can also ask for help outside of lecture time.
- Don't be afraid to approach staff for help. Their offices are accessible to you and they have telephones and email. They are busy people but a large part of their work involves dealing with students. Please see "office hours" section for further details of how to make appointments with academic staff.
- Make use of their time, advice, experience and expertise.
- Remember that activities continue after the exams and that you are required to remain at the University until the end of each semester.
- Never hesitate to see the lecturer if you are having difficulty with his / her module or don't understand why you were given a particular mark
- Handing in coursework late means losing marks. 5% will be lost for every working day late.
- The School has an undergraduate Learning Community Forum with staff and student representatives from each year. Use this system to make constructive comments about your course.
- If you become ill and have to miss more than a couple of days, or a coursework deadline, or if your performance in an exam is affected, go to see your tutor and complete an Extenuating Circumstances Form (forms available from outside the School Office at Sutton Bonington) and on the website:
www.nottingham.ac.uk/academicsservices/qualitymanual/assessment/extenuating-circumstances-policy-and-procedures.aspx
- Missing an exam for any reason is extremely serious and should be avoided if at all possible. Let your Tutor know IMMEDIATELY and complete an extenuating circumstances form available as above.
- Check your email daily and Moodle updates; otherwise you may miss vital information.

5 Student commitment

Students are expected to access their e-mail accounts regularly as this is the main means of communication. Please do not use any other personal email account which you may have for communication within the University. If you do, you risk losing out on important information

You are required to:

- **Read** this handbook and other documents referred to so that you are clear about the structure of your degree course and what is expected of you.
- **Abide** by University Ordinances, Regulations and other codes of practice (e.g. Computing, Safety etc.).
- Consider maintaining an electronic **Personal Academic Record (ePAR)** in collaboration with your tutor (you will be given information at the start of session). It records details of exam performance but also records meetings and items discussed and any significant events occurring during the academic year. The record is important because it allows you to appreciate the progress you have made. It will also form your tutor's record of your period at the University. Tutors are frequently asked to act as referees for their students in connection with applications for accommodation, summer employment and jobs in later years; the ePAR allows this information to be provided quickly and accurately. See section 18 for further details.
- Read **notices** placed on official notice boards. These provide an important primary channel of general communication and may advertise such information as re-arrangements to the teaching timetable.

It is wise to carry a diary in which to note appointments with tutors, module conveners, course managers, etc.

6 Your school and your studies

Teaching Staff - Lecturers are responsible for teaching components of modules and for setting and marking assignments and examinations.

Each module has a **Convener** who is responsible for its organisation. At the start of the module, the Convener will issue to each student a document describing its aims, content, objectives, transferable skills, methods of assessment, dates for submission and return of coursework and penalties for late submission. Students will be given coursework turnaround details. S/he will also conduct a feedback exercise at the end of the module to gauge student opinion.

Each course has a **Course Manager**, responsible for overseeing its structure and smooth running. The Course Manager ensures balance between modules and liaises regularly with other staff to ensure that appropriate teaching and learning are provided. The **Course Managers** are directly responsible to the **Head of School** for ensuring that all levels of the teaching management structure operate efficiently. They should be notified of any significant problems. **Heads of Division** are ultimately responsible for the services provided by their staff.

The **Director of Teaching** oversees the organisation and management of teaching across the School.

The **Semester 1 Tutor** is responsible for maintaining a balance of work between the core Semester 1 modules. S/he appoints student representatives and holds meetings at which any matters which students may wish to raise can be discussed. Don't be afraid to make your views known!

A list of the staff who hold these positions are included in this handbook (see Staff Roles section). Students should feel able to approach any of them with concerns they may have about aspects of their education. Your Personal Tutor can advise you and make the appropriate contacts.

7 Staff roles

Role In School	Staff Member	Location	Tel	Email @nottingham. ac.uk
Head of School	Prof N Crout	Main Building	16253	neil.crout
Director of Administration	Dr S Johnson	Main Building	16000	Sarah.johnson
PA to Professor Neil Crout – Head of School and Dr Sarah Johnson – Director of Administration	Ms S Blencowe	Main Building	16010	Susan.blencowe
Learning and Teaching Manager	Ms K J Wilson	Main Building	16002	kathy.wilson
Student Recruitment Manager	Miss H Wells	Main Building	16015	Helen.wells
Student Experience and Support Officer	Ms R Cameron	Main Building	16003	Rebecca.Cameron
Marketing Manager	Ms H Rotherforth	Main Building	16607	helen.rotherforth
Courses and Modules Administrator	Mrs G Fox	Main Building	16007	Gillian.fox
IT Support Officer	Mr D Walters	Main Building	16511	Dave.walters
Undergraduate IT Advisor	Mr J Craigon	South Lab Building	16252	jim.craigon
Undergraduate Recruitment Administrator	Mrs E Staves	School Office	16005	elena.staves
Erasmus Co-ordinator (European Cert.)	Mrs E Staves	School Office	16005	elena.staves
Exams & Prizes	Mrs L Eaves	School Office	16001	linda.eaves

Heads of Division				
Animal Sciences	Prof P Garnsworthy	South Lab	16065	phil.garnsworthy
Agricultural and Environmental	Prof G Shaw	Gateway Building	13206	george.shaw
Food Sciences	Prof T Foster	Food Sciences Building	16246	Tim.foster
Nutritional Sciences	Prof A Salter	North Lab	16120	Andrew.salter
Plant and Crop Sciences	Prof G Seymour	Plant & Crop Sciences Bldg	16323	graham.seymour

Key Roles				
Warden Bonington Hall	Dr I Hardy	South Lab	16052	ian.hardy
Senior Tutors	Prof M R Luck Dr L Bailey	South Lab Gateway	16309 16255	martin.luck liz.bailey
Semester 1 Tutor	Dr K Pyke	Plant & Crop Sciences Bldg	13216	kevin.pyke
Exam. Officer	Dr M Eames	North Lab	16183	matthew.j.eames
Study Abroad Co-ordinator	Dr M Alcocer	North Lab	16103	Marcus.alcocer
4-Year Degree Tutor (Euro. Cert.)	Dr Z Gonzalez-Carranza	Plant and Crop Science	16374	Zinnia.Gonzalez- carranza
Director of Teaching and Learning	Prof M Dickinson	Plant and Crop Science	13236	matthew.dickinson
U21 Co-ordinator	Dr Z Gonzalez-Carranza	Plant and Crop Science	16374	Zinnia.Gonzalez- carranza
Malaysia School Coordinator	Dr P Alderson	Plant and Crop Sciences	16059	Peter.alderson
Industrial Placement Officer	Dr J Wayte	Bioenergy Building	16171	judith.wayte
Course Managers				
Agriculture Agricultural & Crop Science Agricultural & Environmental Science Agricultural & Livestock Science	Dr P Wilson	South Lab	16075	paul.wilson
Animal Science	Dr G Mann	South Lab	16326	george.mann
Applied Biology & Biotechnology	Dr G W Lycett	Plant & Crop Sciences	16340	grantley.lycett
Environmental Biology	Prof M Broadley Dr R Blunt	Plant & Crop Sciences	16382	Martin.broadley
Environmental Science	Dr S Young Dr R Blunt	Gateway Building, SB	16257	Scott.young
Food Microbiology & Microbiology	Dr J Hobman	Food Sciences Building	16166	Jon.hobman
Master of Nutrition & Dietetics	Dr F McCullough	North Lab	16118	fiona.mccullough
Nutrition, Nutritional Biochemistry	Dr J Majewicz	North Lab	16106	jon.majewicz
Nutrition & Food Science Food Science	Dr D Gray	Food Sciences Building	16147	david.gray
Plant Science	Dr Kevin Pyke	Plant & Crop Sciences Bldg	13216	Kevin.pyke

8 Academic staff and locations

Name	Room	Tel Number
Dr R Alberio	B223, South Lab Building	0115 951 6304
Dr M Alcocer	49E, 2nd Floor, North Lab Building	0115 951 6103
Dr P Alderson	B213, South Lab Building	0115 951 6056
Dr R Anand-Ivell	B216, South Lab Building	0115 951 6298
Mrs A Avery	49D, North Lab Building	0115 951 6238
Dr E Bailey	C21, The Gateway Building	0115 951 6255
Dr L Band	C32, Plant Sciences Building	0115 951 6108
Prof M J Bennett	A06, Plant Sciences Building	0115 951 3255
Dr A Bishopp	A15, Plant Sciences Building	0115 951 6108
Dr R Blunt	C22, The Gateway Building	0115 951 6288
Dr J Brameld	43, 1st Floor, North Lab Building	0115 951 6133
Prof M Broadley	C34, Plant Sciences Building	0115 951 6382
Dr K Brown	B30a, Food Science Building	0115 951 6509
Dr N Chapman	306, South Lab Building	0115 951 6082
Dr L Coneyworth	58, 2nd Floor, North Lab Building	0115 951 6124
Prof I F Connerton	B28, Food Sciences Building	0115 951 6119
Dr D Cook	C04, Bioenergy & Brewing Science Bldg	0115 951 6245
Prof N Crout	C19, The Gateway Building	0115 951 6253
Mr Mike Davies	C311, South Lab Building	0115 951 6066
Dr I De Smet	C30, Plant Sciences Building	0115 951 6681
Prof M J Dickinson	A04, Plant Sciences Building	0115 951 3236
Prof C E R Dodd	B30, Food Science Building	0115 951 6163
Dr C Du	C05, Bioenergy & Brewing Science Bldg	0115 951 6694
Dr M Elmes	53, 2nd Floor, North Lab Building	0115 951 6183
Dr I Fisk	A23, Food Sciences Building	0115 951 6037
Prof T Foster	A20, Food Sciences Building	0115 951 6246
Dr M J Foulkes	312, South Lab Building	0115 951 6024
Dr R G Fray	C33, Plant Sciences Building	0115 951 6371
Dr A P French	C08a, Plant Sciences Building	0115 951 6108
Prof P C Garnsworthy	B203, South Lab Building	0115 951 6065
Dr Z Gonzalez-Carranza	C11, Plant Sciences Building	0115 951 6335
Dr N Graham	C30, Plant Sciences Building	0115 951 6681
Dr D Gray	A24, Food Sciences Building	0115 951 6147
Prof S E Harding	A15, The Limes	0115 951 6148
Dr I Hardy	C26, The Gateway Building	0115 951 6052
Dr J Harris	C18, Vet School	0115 951 6316
Dr L Hewson	C03, Bioenergy & Brewing Science Bldg	0115 9516685
Dr P J Hill	B21, Food Sciences Building	0115 951 6169
Prof S E Hill	A28, Food Sciences Building	0115 951 6145
Dr J L Hobman	B22, Food Sciences Building	0115 951 6166

Prof T C Hodgman	C30, The Gateway Building	0115 951 6290
Prof M J Holdsworth	301B, South Lab Building	0115 951 6046
Prof J Hort	C20, Bioenergy & Brewing Science Bldg	0115 951 6222
Dr P Jethwa	55, North Lab Building	0115 951 6604
Dr S Kelly	C23, Vet School	0115 951 6130
Prof I P King	C21, Plant Sciences Building	0115 951 6372
Dr J King	C26, Plant Sciences Building	0115 951 3205
Prof S Langley-Evans	57, 2nd Floor, North Lab Building	0115 951 6139
Dr B Lomax	C24, The Gateway Building	0115 951 6258
Dr C L Lu	C23, The Gateway Building	0115 951 6293
Prof M R Luck	B207, South Lab Building	0115 951 6309
Dr G W Lycett	C10, Plant Sciences Building	0115 951 6340
Dr S Lydon	C08, Plant Sciences Building	0115 951 6289
Dr G Mann	B208, South Lab Building	0115 951 6326
Prof S T May	NASC	0115 951 3306
Dr S Mayes	301C, South Lab Building	0115 951 6234
Dr F S W McCullogh	26, 1st Floor, North Lab Building	0115 951 6118
Dr K Mellits	B26, Food Sciences Building	0115 951 6172
Dr K M Millar	B67, Vet School	0115 951 6303
Dr D Mellor	49F, 2nd Floor, North Lab Building	0115 951 6098
Prof S Mooney	C31, The Gateway Building	0115 951 6257
Dr E H Murchie	301C, South Lab Building	0115 951 6082
Dr A Murton	49H, 2nd Floor, North Lab Building	0115 823 6592
Dr T Parr	53A, 2nd Floor, North Lab Building	0115 951 6128
Miss J Pearce	49G, 2nd Floor, North Lab Building	0115 951 6105
Dr C Powell	C02, Bioenergy & Brewing Science Bldg	0115 951 6191
Dr K Pyke	C09, Plant Sciences Building	0115 951 3216
Dr S Ramsden	308, South Lab Building	0115 951 6078
Dr R Ray	303, South Lab Building	0115 951 6094
Dr C E D Rees	B23, Food Sciences Building	0115 951 6167
Dr T P Robbins	C27, Plant Sciences Building	0115 951 6329
Prof J A Roberts	A06, Plant Sciences Building	0115 951 6339
Dr S Rossall	C12, Plant Sciences Building	0115 951 6338
Prof A M Salter	32, 1st Floor, North Lab Building	0115 951 6120
Dr D Scott	B19, Food Sciences Building	0115 951 6221
Prof G B Seymour	A03, Plant Sciences Building	0115 951 6323
Prof G Shaw	C29, The Gateway Building	0115 951 3206
Prof K D Sinclair	B210, South Lab Building	0115 951 6053
Dr M S Sjogersten	C27, The Gateway Building	0115 951 6239
Dr D Smith	C22, The Gateway Building	0115 951 6288
Dr D L Sparkes	330, South Lab Building	0115 951 6074
Dr D Stekel	C20, The Gateway Building	0115 951 6294
Dr C Stevenson	A57, Vet School	0115 951 6055

Dr R Stoger	B232, South Lab Building	0115 951 6232
Dr A Swali	A18, Ground Floor, Food Sciences Bldg	0115 951 6578
Dr R Swarup	C31, Plant Sciences Building	0115 951 6284
Dr D Sweetman	B234, South Lab Building	0115 951 6019
Dr J A Swift	57a, Second Floor, North Lab	0115 951 6178
Dr M Taylor	52, 2nd Floor, North Lab Building	0115 95 16104
Prof G A Tucker	09, Floor C, Bioenergy & Brewing Science Bldg	0115 951 6126
Dr A Waterfall	B224, South Lab Building	0115 951 6307
Dr S Welham	24, North Lab Building	0115 951 6129
Dr D Wells	A14, Plant Sciences Building	0115 951 6108
Dr H West	C28, The Gateway Building	0115 951 6268
Mrs E Weston	A29, Food Sciences Building	0115 951 6146
Dr G White	B227, South Lab Building	0115 951 6068
Mrs K Whitehead	28A, 1st Floor, North Lab Building	0115 951 6136
Dr P Wilson	332, South Lab Building	0115 951 6075
Prof Z A Wilson	C28, Plant Sciences Building	0115 951 3235
Prof J Wiseman	B205, South Lab Building	0115 951 6054
Dr B Wolf	A27, Ground Floor, Food Sciences Bldg	0115 951 6134
Dr S Young	C25, The Gateway Building	0115 951 6256

9 Course structure, organisation and choosing your modules

The Academic Year

The academic year at Nottingham is based on 2 semesters (autumn and spring) spread over three terms.

The following definitions might be helpful to you:

- **Credits** indicate a quantity of assessed learning. They contribute to a cumulative indication of modules which a student has completed. One credit equates to approximately 10 hours of study.
- A **Module** is a specified programme of study which is self-contained and attracts a specified number of credits. Examinations are held at the end of most modules. A ten credit module accounts for approximately 100 hours of your time, of which usually no more than 40 hours will be spent in the lecture room or laboratory
- A **Course of Study** is a set of modules satisfying the requirements for a particular degree and attracting 320 credits for an Ordinary Bachelor degree and 360 credits for an Honours degree.
- The levels in a course of study leading to an Honours degree are as follows
 - Year 1 (120 credits) Level 1
 - Year 2 (120 credits) Level 2
 - Year 3 (120 credits) Level 3

And for a Master of Nutrition and Dietetics or MSci degree

- Year 4 (120 credits) Level 4

Credits achieved in Year 1 are for progression purposes only and will not contribute to the final degree classification.

- A **semester** is a division of the academic year. It consists of twelve weeks of teaching, coursework and revision, plus two (Autumn Semester) or four (Spring Semester) weeks of assessment and consultation.
Note: Although each academic year is divided for teaching purposes into two semesters, there is still a three-term pattern of attendance, with breaks at Christmas, Easter and during the summer.
- A **year** is period of study consisting of an Autumn Semester followed by a Spring Semester. **Assessment** may be by means of written examination papers, oral examinations or coursework. Progression and/or degree classification are based on the outcome of the assessment.
- A **mark** module a numerical indication of the quality of the assessed work completed by a student in each. Marks awarded are subject to the approval of the Board of Examiners and are ratified by an External Examiner.

Choosing optional modules*

At module advisory days you will be asked to complete a module registration form that details your chosen optional modules for ALL PERIODS, i.e. for modules totalling 120 credits. All entries must include the module code. **All optional choices must be approved and signed by your Course Manager.** You will have an opportunity at the beginning of the Autumn/Spring Semesters (the "Two week change of mind period") to make adjustments to your choices for that semester; you will also need to check that there are no timetable clashes.

Your choice of modules must normally total 60 credits per semester, and in any event not less than **50 credits** or more than **70 credits** per semester. To determine how a Full Year module contributes to the number of credits in a given semester, check the semester credit split for that module in the Module Catalogue modulecatalogue.nottingham.ac.uk/Nottingham.

IT IS YOUR RESPONSIBILITY to see that your combination of modules accords with the Regulations for your course and teaching timetable. **Failure to do so could prevent you from progressing to the next year of the course or from graduating.**

Once you have chosen your optional modules and they have been approved, IT IS YOUR **RESPONSIBILITY** to ensure that you read the Declaration, sign the form and hand it to School Office staff. After that date changes to Full Year and Autumn Semester choices will not be allowed. **Failure to hand in the form by the date displayed may lead to incorrect examination entries and records.**

***There are some courses in Year 1 where there are no optional modules; however this information is useful for Years 2 and 3.**

Modules outside Biosciences

If you wish to register for an optional module from outside the School of Biosciences, you should write the module details on your Module Entry Form and obtain a signature in the "Agreed" box from the School that offers the module, as confirmation that the offering School accepts your registration (or email provide email confirmation).

A complete list of modules within the University can be found in the Catalogue of Modules at modulecatalogue.nottingham.ac.uk/Nottingham.

10 Environmental Science - Course structure

Course Managers: Dr Ruth Blunt, Dr S Young

Contact details: e: ruth.blunt@nottingham.ac.uk or t: 0115 951 6563 or scott.young@nottingham.ac.uk or t: 0115 951 6256

Some revision of Year 2 and 3 course structures will take place during 2014/15. Students will be informed of any changes

Semester 1

Core modules (55 credits)

Global Environmental Processes	C111E1	10
Environmental Geoscience	C111E5	10
The Ecology of Natural and Managed Ecosystems	D211E5	20
Dissertation in Environmental Science (20 credit Full Year module)	C11BE1	10/20
Foundation Science (10 credit Full Year module)	D21BF2	5/10

Semester 2

Core modules (35 credits)

Environmental Science & Society	C112E6	10
Plant Science	C112P1	10
Dissertation in Environmental Science (20 credit Full Year module)	C11BE1	10/20
Foundation Science (10 credit Full Year module)	D21BF2	5/10

And 30 credits normally chosen from:

The Anthropology of Human Ecology	AA1017	10
Grassland Management	D212A1	10
Contemporary Agricultural Systems	D212A2	10
Managing Tourism and the Environment: Conflict or Consensus?	N12122	10
Environmental Archaeology	V61101	10

Semester 3

Core modules (50 credits)

Soil Science	C123E3	10
Climate Change Science	C123E7	10
Research Techniques for Environmental Science: Part 1	D223E3	10
Ecosystem Processes	D223E4	10
Research Tutorials in Environmental Science (20 credit module Full Year)	D22BE2	10/20

20 credits normally chosen from (Suggested options are listed below. Any module from the school of bioscience, life sciences and geography can be counted as an optional module)

Environmental Science Field Course*	D223E2	10
Plant Physiology: Principles of Resource Capture	D223P8	10
Economic Analysis for Agricultural and Environmental Sciences	D223A6	10
Tropical Environmental Science Field Course*	D223E5	10

*Students must take at least one field course in either semester 3, 4 or 5

Semester 4

Core module (40 credits)

Communicating Environmental Science	C124E6	10
Hydrogeochemistry	C124E8	10
Research Techniques for Environmental Science: Part 2	D224E5	10/20
Research Tutorials in Environmental Science (20 credit module Full Year)	D22BE2	10/20

20 credits normally chosen from (Suggested options are listed below. Any module from the school of bioscience, life sciences and geography can be counted as an optional module)

Patterns of Life	F82328	10
Hydrogeochemistry Field course*	C124E9	10
Biological Photography and Imaging 1	C12458	10
Rural Environmental Geography B	L82262	10
World Agroecosystems	D224P4	10
Computer Modelling in Science: Introduction	D224E4	10
Natural Systems	C12473	10

*Students must take at least one field course in either semester 3, 4 or 5

Semester 5

Core modules (20 credits)

Environmental Science Project	D23BE1	20/40
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40 credits normally chosen from (Suggested options are listed below. Any module from the school of bioscience, life sciences and geography can be counted as an optional module)

Soil and Water Science	C135E3	10
Contaminant Fate and Impact in the Environment	C135E4	10
Arctic Ecology Field Course*	C135E8	10
Biological Photography and Imaging 2	C13582	10
Environmental Pollution Field Course*	C135E5	10
Plants and the Light Environment	D235P6	10
Remote Sensing of Environment	F83169	10
Computer Modelling in Science: Applications	C135E9	10

*Students must take at least one field course in either semester 3, 4 or 5

Semester 6

Core modules (20 credits)

Environmental Science Project	D23BE1	20/40
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40 credits normally chosen from below (Suggested options are listed below. Any module from the school of bioscience, life sciences and geography can be counted as an optional module)

Soil and Water Pollution and Reclamation	C136E1	10
Computer Modelling in Science: Mini-Project	C136E3	10
Plants and the Soil Environment	D236P7	10
Geobiology	D236E2	10
Environmental Microbiology	C136E6	10
Applied Environmental Physiology	C13687	10
Applied Bioethics 2: Sustainable Food Production, Biotechnology and the Environment	D236Z6	10

***N.B. Environmental Science students must take at least one of the following field courses: Environmental Science Field Course (D223E2); Hydrogeochemistry Field Course (C124E9); Arctic Ecology Field Course (C135E8); Environmental Pollution Field Course.**

Semester 7

Core modules (60 credits)

Statistics and Experimental Design for Bioscientists	D24CO2	10
MSci Research Project in Environmental Science	D24BE1	10/20
Writing and Reviewing Research Proposals	C14301	10/20
Scientific Research Methods	D24BE2	30/60

Semester 8

Core modules (60 credits)

MSci Research Project in Environmental Science	D248E1	10
MSci Research Project in Environmental Science	D24BE1	30/60
Writing and Reviewing Research Proposals	C14301	10/20
Scientific Research Methods	D24BE2	10/20

11 Table of modules

Autumn (Semester 1) and Spring (Semester 2)

		Agric	Ag & C	Ag & ES	Ag & LS	Ani Sci	App Biol	Biotech	Dietetics	Env Biol	Env Sci	Food Sci	Microbio	Nutrition	Nutri and Food Sci	Plant Sci
Title	Code															
Academic Development and Employability	D21BP1	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10			5 of 10	5 of 10	5 of 10	5 of 10	5 of 10
Foundation Science	D21BF2	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10			5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10
The Biosciences and Global Food Security	D211F3	10	10	10	10	10	10	10	10			10	10	10	10	10
Biochemistry – The Building Blocks of Life	D21BN2	10 of 20	10 of 20		10 of 20	10 of 20	10 of 20	10 of 20	10 of 20			10 of 20	10 of 20	10 of 20	10 of 20	10 of 20
Genes and Cells 1	D211P1	10	10		10	10	10	10	10			10	10	10	10	10
Animal Biology	D211A2	10			10	10	10	10					10			
Introduction to Nutrition	D21BN1				10 of 20	10 of 20			10 of 20			10		10 of 20	10 of 20	
Microbes and You	D21BF3						10 of 20	10 of 20					10 of 20			
Introduction to Dietetics	D21BN5								5 of 10							
Food Materials and Ingredients	D21BF1											10 of 20		10 of 20	10 of 20	
The Ecology of Natural and Managed Ecosystems	D211E5	20	20	20							20					20
Introduction to Health Behaviours	D21BN4													10 of 20		
Global Environmental Processes (UP)	C111E1			10						10	10		10			
Environmental Geoscience	C111E5										10					
Dissertation in Environmental Science (UP)	C11BE1			10 of 20						10 of 20	10 of 20					
Experimental Design and Analysis	C11111									10						
Genetics, Ecology and Evolution	C11120									10						
Animal Kingdom	C11119									10						
Microbiology	C41105									10						

NB Modules in semesters 2 - 6 may have pre-requisite modules. It is your responsibility to ensure you are taking the appropriate pre-requisites for later modules. Module choices are subject to timetabling constraints. It is therefore important to check the timetable and pre-requisites when making your module choices.

General			Agric	Ag & C	Ag & ES	Ag & LS	Ani Sci	App Biol	Biotech	Dietetics	Env Biol	Env Sci	Food Sci	Microbiol	Nutrition	Nutri & Food Sci	Plant Sci
	Module No																
Academic Development and Employability	D21BP1		5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10			5 of 10	5 of 10	5 of 10	5 of 10	5 of 10
Foundation Science	D21BF2		5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10			5 of 10	5 of 10	5 of 10	5 of 10	5 of 10	5 of 10
Biochemistry – The Building Blocks of Life	D21BN2		10 of 20	10 of 20	10 of 20	10 of 20	10 of 20	10 of 20	10 of 20	10 of 20			10 of 20	10 of 20	10 of 20	10 of 20	10 of 20
Genes and Cells 2	D212P3					10	10	10	10					10			10
Introduction to Nutrition	D21BN1					10 of 20	10			10 of 20			10 of 20		10 of 20	10 of 20	
Microbes and You	D21BF3							10 of 20	10 of 20					10 of 20			
Food Materials and Ingredients	D21BF1												10 of 20		10 of 20	10 of 20	
Contemporary Agricultural Systems	D212A2		10	10	10	10					10	10	10				
Introduction to Dietetics	D21BN5									5 of 10							
Plant Science Research Tutorials	D212P5			10													10
Introduction to Health Behaviours	D21BN4									10 of 20					10 of 20	10 of 20	
Grassland Management	D212A1		10	10	10	10					10	10					10
Microbial Physiology	D212F7							10	10				10	10			
Introductory Physiology	D212Z5						20	20	20	20					20	20	
Dissertation in Environmental Science (UP)	C11BE1			10 of 20							10 of 20	10 of 20					
Environmental Science and Society	C112E6			10							10	10					
Environmental Archaeology (UP)	V61101										10	10					
Managing Tourism & the Environment: Conflict or Consensus (UP)	N12122											10					
The Anthropology of Human Ecology (UP)	AA1017										10	10					
Microorganisms and Disease (UP)	C51201										10	10		10			
Plant Science (UP)	C112P1		10	10	10			10	10		10	10					10

NB Modules in semesters 2 - 6 may have pre-requisite modules. It is your responsibility to ensure you are taking the appropriate pre-requisite Module choices are subject to timetabling constraints. It is therefore important to check the timetable and pre-requisites when making your module choices.

Black sections: core Grey Sections: recommended options (UP) = Module based at University Park

12 Timetable information

Timetables are available from mid-August 2014 at www.nottingham.ac.uk/timetable.

Syllabus Plus Timetable Week	Teaching Week	Week Commencing	Comments
1	1	22/09/14	<i>Autumn teaching START 25/09/14</i>
2	2	29/09/14	Autumn Semester
3	3	06/10/14	Autumn Semester
4	4	13/10/14	Autumn Semester
5	5	20/10/14	Autumn Semester
6	6	27/10/14	Autumn Semester
7	7	03/11/14	Autumn Semester
8	8	10/11/14	Autumn Semester
9	9	17/11/14	Autumn Semester
10	10	24/11/14	Autumn Semester
11	11	01/12/14	Autumn Semester
12	12	08/12/14	<i>term finishes Friday 12/12/14</i>
13	Vacation	15/12/14	Christmas
14	Vacation	22/12/14	Christmas
15	Vacation	29/12/14	Christmas
16	Vacation	05/01/15	Christmas
17	Assessment	12/01/15	Assessment
18	Assessment	19/01/15	Assessment
19	1	26/01/15	Spring Semester
20	2	02/02/15	Spring Semester
21	3	09/02/15	Spring Semester
22	4	16/02/15	Spring Semester
23	5	23/02/15	Spring Semester
24	6	02/03/15	Spring Semester
25	7	09/03/15	Spring Semester
26	8	16/03/15	Spring Semester
27	9	23/03/15	Spring Semester
28	Vacation	30/03/15	Easter
29	Vacation	06/04/15	Easter
30	Vacation	13/04/15	Easter
31	Vacation	20/04/15	Easter
32	10	27/04/15	Spring Semester
33	11	04/05/15	Spring Semester
34	12	11/05/15	Revision/Assessment
35	Assessment	18/05/15	Assessment
36	Assessment	25/05/15	Assessment
37	Assessment	01/06/15	Assessment
38	-	08/06/15	-
39	-	15/06/15	<i>term finishes Friday 19 June</i>
40		22/06/15	
41		29/06/15	
42		06/07/15	
43		13/07/15	
44		20/07/15	
45		27/07/15	
46		03/08/15	
47		10/08/15	
48	Assessment	17/08/15	Re-sit Period
49	Assessment	24/08/15	Re-sit Period
50	Assessment	31/08/15	Re-sit Period
51	Assessment	07/09/15	Re-sit Period
52		14/09/15	

13 Teaching methods

Lectures

Throughout your university career, you will find that lectures are the most common method of teaching. It is most important for you to ensure that you have a set of good clear notes based on the lectures **and** your own reading. As you progress through the second and third years of your degree, you will be expected to do increasing amounts of reading; it is therefore useful to develop your reading skills during your first year. Teaching of some modules is complemented by the use of teaching software.

Hints and tips for making the most effective use of the teaching and learning opportunities available to you are provided in *Study Skills Guide* given to all students at the beginning of their first year).

NB books which should be purchased will be identified at the start of teaching - you are advised not to buy any books prior to this unless otherwise indicated in the recommended reading lists at the end of each module synopses.

Practical Classes

Course requirements may require you to take practical classes. These may involve laboratory experiments or observations and analysis of data obtained during the sessions. Practical sessions provide an opportunity to learn and develop additional skills in techniques, observation and analysis. Practical classes also provide an opportunity to extend your knowledge of topics not covered in lectures. For each practical course you will receive a laboratory manual or collection of schedules which will expand on the learning experience of the course.

Some large first year classes are taught simultaneously in adjacent laboratories. Consult the class lists posted on the notice boards to identify the laboratory you will work in. For each practical class, at least one member of academic staff will always be in attendance. S/he will be accompanied by postgraduate students who work as demonstrators. In some cases, technicians may also be present to assist. The teaching team is present in the laboratory to aid your learning experience, so please seek their help as much as you need, and ensure you carry out your work safely, with no harm to yourself or other students. Practical classes provide a valuable opportunity for you to get to know the academic staff in a less formal way and for them to help you. These classes frequently provide an excellent opportunity for you to raise questions from the lecture course with the member of staff and deal with problems you may have.

Advice for making the most of practical work can be found in appendix 1.

For all practical classes, you **MUST WEAR** a suitable full-length laboratory coat, which must be buttoned at all times. You will be given a lab coat and safety glasses during Week 1 and advised about any other items you need to purchase. You **MUST** also **WEAR** safety glasses at all times unless advised to the contrary by an academic member of staff.

Safe working and good laboratory practices are essential in the laboratory environment and all laboratory exercises must be formally assessed under the regulations of COSHH. Details of these assessments are noted in the laboratory manual or schedule to draw your attention to specific hazards and the requirements of safe practice. During the introduction to a practical class, the member of staff in charge will give a verbal statement on safety issues.

Food and drink **MUST NOT** be taken into the laboratory.

Assessed Work

Many modules have an element of student-centred learning, especially in Parts I (Year 2) and II (Year 3) of your course. The work involved in these is assessed and forms part of the overall mark for the module. The proportion of the mark allotted to coursework is identified in each module description. Penalties are applied for late submission of coursework (5% per working day), unless there are extenuating circumstances and appropriate documentation is provided.

IT Training

IT is increasingly important as a basis of learning, communication and the preparation of your work e.g. dissertation, BSc project thesis and laboratory reports. It is important that you develop/improve your IT skills as you progress through your course.

Computer-aided Learning (CAL)

Several modules include computer-based teaching material, quizzes, exercises, simulations. In order to use these, you must be registered on the School of Biosciences Network. You may be assessed on some of these packages while using them or in the form of a conventional write-up. You should be prepared to take notes as you work through material on computers.

14 Assessment, progression, compensation and reassessment

The University Undergraduate Course Regulations apply to all the School's BSc degrees. They regulations can be found at:

www.nottingham.ac.uk/academicsservices/qualitymanual/studyregulations/studyregulation sforundergraduatecourses.aspx

You should note that:

- The pass mark for a module is 40%.
- **Progression and Compensation (BSc):** You don't need to pass all modules in order to progress to the next stage of your course. Compensation of failed modules can be achieved in the following ways – if you have:

(a) passed modules worth at least 80* credits and have a weighted average for the stage of at least 40% with no module marks of less than 30%;

or

(b) passed modules worth at least 100* credits and have a weighted average for the stage of at least 50%.

or

(c) passed modules worth at least 90* credits, have marks of 30% or more in modules worth at least 110* credits, and have a weighted average for the stage of at least 45%.

* Subtract 20 credits for students on Ordinary Degree courses. The resulting number of credits is also used to determine whether a student may be allowed to transfer to the next stage of an Ordinary degree course after being unable to progress to the next stage of an Honours or Undergraduate Masters course. In these cases, the weighted average is calculated over the best 100 credits of marks received by the student and the requirement to have no marks below 30% in (a) and (c) above applies only to these 100 credits.

Progression and Compensation (MNutr): At the Part I, Part II and Part III stage, no core module can be compensated with the exception of optional modules for which university regulations apply. In addition, students must obtain at least 35% in both the examination and coursework components of these modules, although a mark between 35% and 39% in either the examination or coursework may be compensated by the other component of assessment.

Progression (MSci): At the end of Part I, students on the MSci degree must achieve an overall average of 55% at first sit in order to progress to Part II.

- **Reassessment:** If you do not reach the criteria for progression at the end of stage of study, you have a right to one re-assessment in each failed module. The form of reassessment is normally the same as for the first sit, with some exceptions (for example some MCQ papers are sometimes replaced with essay-style papers).

For modules which are assessed by both coursework and exam, the School of Biosciences requires that, if the module has been failed overall, then you must be reassessed in the examination element of that module, even if that component of assessment has been passed.

In addition, if you have failed the coursework overall (of a module which is assessed by both coursework and examination) you may elect to resubmit remedial coursework. However, if you have passed your coursework overall, you are not

entitled to resubmit either the whole coursework or any failed component within your coursework assessments. If you wish to take up the option of remedial coursework, you must make contact with the appropriate module convener (or his/her representative) **within 7 days** of the date of the letter notifying you that you have failed to progress. The module convener will give you a title and submission date for the coursework. Any remedial coursework must be submitted before the start of the August examination period. However, individual module conveners have the right to set earlier deadlines at the time of setting the coursework. **Please note: for modules which have both an examination and coursework component, it is not possible for you to be reassessed by resubmitting coursework alone; you are required to retake the examination, even if this element of the module has been passed.**

This policy allows students to maximise their chances of passing the module after reassessment. In Part I (and Part II [Master of Nutrition]), the ORIGINAL marks are carried forward for degree classification purposes. However, reassessment marks may be considered by the examining boards if the candidate is on the borderline between degree classes.

- **Progression after reassessment:** For progression purposes, the higher or highest of the marks obtained in each module (at first attempt or upon re-assessment) are considered and the progression and compensation regulations applied accordingly.
- **Marking Schemes:** see appendices 2-7.
- **BSc Degree Candidates**

Award of an Honours degree is dependent on completion and submission of a final year project.

When the overall Part I / Part II mark has been computed, it is rounded to provide a single overall integer mark before any degree classification is assigned. Subject to the exception of borderline candidates and those with extenuating circumstances, who may be awarded a higher degree classification, students shall be awarded the class of degree with their overall mark. The classes of honours degree are as follows:-

- First Class - average of 70%+
- Second Class (Division 1) - average of 60-69%.
- Second Class (Division II) - average of 50-59%.
- Third Class - average of 40-49%.

Weighting of BSc degrees is Part I (30%) and Part II (70%). Candidates are regarded as borderline and considered for promotion to a class higher than that of their weighted average if their weighted average mark is: 68 or 69; 59; 49; 39.

Criteria and outcomes:

Candidates with a degree weighted average in the borderline range (39, 49, 59, 68 or 69) will be promoted to the next higher class of degree (III, II.ii, II.I, I respectively) if they have 140 credits' worth of marks in the higher degree class (or above) spread over Parts I and II, OR if they have 100 credits' worth of marks in the higher degree class (or above) solely in Part II.

Candidates not meeting either of these criteria will not be promoted to the higher degree class.*

* No candidate whose weighted average does not fall within a borderline as defined above shall be considered for promotion, unless documented grounds have been supplied for supposing that their performance in assessed coursework and/or examinations has been seriously impaired by medical or compassionate circumstances, and the examiners judge that, but for those circumstances, the candidate would have achieved a weighted average

MSci and MNutr Candidates:

Weighting of MSci degrees is Part I (30%), Part II (30%), Part III (40%);
Weighting of the MNutr degree is Part I (20%), Part II (40%), Part III (40%).
Candidates are regarded as borderline and considered for promotion to a class higher than that of their weighted average if their weighted average mark is: 68 or 69; 59; 49; 39.

Criteria and outcomes:

Candidates with a degree weighted average in the borderline range (39, 49, 59, 68 or 69) will be promoted to the next higher class of degree (III, II.ii, II.i, I respectively) if they have 140 credits' worth of marks in the higher degree class (or above) spread over Parts II and III, **OR** if they have 100 credits' worth of marks in the higher degree class (or above) solely in Part III.

Candidates not meeting either of these criteria will not be promoted to the higher degree class.*

* No candidate whose weighted average does not fall within a borderline as defined above shall be considered for promotion, unless documented grounds have been supplied for supposing that their performance in assessed coursework and/or examinations has been seriously impaired by medical or compassionate circumstances, and the examiners judge that, but for those circumstances, the candidate would have achieved a weighted average in the higher range or would have met the criteria for promotion specified above.

The full borderline procedure can be viewed at
www.nottingham.ac.uk/~sazintr//student/learning-and-teaching.html

15 Extenuating circumstances

Policy regarding extensions to coursework on grounds of Extenuating Circumstances, Disability or Specific Learning Difficulties Summary:

- 1) Extensions to coursework will not normally be given unless the student has a specific recommendation from the School's Extenuating Circumstances Committee, or Academic/Disability Support.
- 2) Extensions will not normally be given as a result of short-term illness of less than 7 days unless the module convenor agrees this.
- 3) Students with Academic/Disability referrals may apply for a short extension to coursework submission on the basis of particular circumstances.
- 4) Students with approved extenuating circumstances may be granted an extension to coursework submission of usually no more than 21 calendar days.

Full details of the school's implementation of University policy is below. Meeting deadlines is an important part of working life. It is important that students develop time management skills and the ability to meet deadlines before undertaking work placements or entering the workforce on graduation. Coursework deadlines are normally set at the start of the module by the module convenor¹, and clearly stated in module documents/introductory teaching sessions. This gives students the opportunity to identify periods of high workload within each semester and plan their time accordingly. Whilst course teams will try to adapt deadlines to avoid coursework 'hotspots', deadlines are set as appropriate for each individual module and it is the student's responsibility to plan their time accordingly.

Extensions to coursework deadlines can be given in limited circumstances – for example, if students have extenuating circumstances, disability or specific learning difficulties. These are dealt with in the following way.

- Extensions to coursework will not be given to students unless they have a specific recommendation from Academic/Disability Support, the School's Extenuating Circumstances (ECs) committee or the module convenor (see below).
- Students with specific recommendations from Academic/Disability Support may request one extension in advance of the deadline, giving justification for why they need it. Students should not expect to be offered an extension, and it is acceptable for the Module Convenor not to allow one, if it is not possible within the module structure – for example, if the work is subject to a very tight marking turn-around period, such as laboratory practical write-ups. In these circumstances, students should be given notice in advance of the deadline that no extensions can be allowed. If the module convenor feels that an extension is appropriate, the following extension lengths, which have been endorsed by Academic Support, will be followed:

Length of Coursework	Extension
Up to 2,500 words (or equivalent)	Maximum of 2 calendar days
2,500- 5,000 words (or equivalent)	2-4 calendar days
Final Year Dissertation	Maximum of 5 calendar days

Any further extension would normally only be given on the basis of approved extenuating circumstances.

¹ Where this guidance refers to "module convenor" this can also be taken to include coursework marker/other academic contributor to the module where this person is not the module convenor.

Any unapproved late submissions will have marks deducted as outlined in the Quality Manual (5% for each working day).

Students who submit coursework late as a result of illness or other circumstances lasting more than 7 days should discuss this with the module convenor or their personal tutor and should submit an EC form and evidence within 7 days of the submission deadline. (This documentation will be considered via the normal EC process (see: www.nottingham.ac.uk/academicservices/qualitymanual/assessmentandawards/extenuating-circumstances-policy-and-procedures.aspx

- If ECs are accepted, an extension to the submission will be agreed and any marks that have been deducted for late submission will be reinstated.
- Any extension (within a teaching semester) for students with ECs will not normally be for more than 21 calendar days, to ensure that all coursework is submitted prior to the coursework return date. Any submission after the return date will not be accepted but a student may be given a first sit opportunity if they have approved ECs.

16 Plagiarism, paraphrasing and other academic misconduct

This section is also covered in the Study Skills book. It draws upon information available at the following University Web sources together with guidance from staff in the School of Biosciences.

USEFUL ADVICE FOR STUDENTS

Further advice on how to avoid plagiarism will be provided during the year 1 tutorial module, where you will also be shown how to check your work for plagiarism, using Turnitin.

One good method to avoid plagiarism is to make notes from material you have read and construct your essay / report, in your own words, from these notes. It is tempting (and easy) to copy and paste, but this is unacceptable and constitutes an academic misconduct. It is also poor practice to construct a draft by copying and pasting material from multiple sources, with the intention of then paraphrasing the resulting document. Apart from the fact that the end-product may be disjointed, the paraphrasing is often incomplete and the work submitted may contain elements of plagiarised material. It is, however, acceptable to include relevant figures and tables from published work, as long as you acknowledge their source by citing the primary reference for them. To make a specific point, there may be occasions when you may want to quote an author verbatim; this is acceptable if you put the quotation in inverted commas and give the source.

USEFUL WEBSITES

Academic integrity and plagiarism

www.nottingham.ac.uk/teaching/assessmentfeedback/integrity/index.aspx

Quality Manual

www.nottingham.ac.uk/academic-services/current-students/academic-appeals-misconduct.aspx

Studying Effectively

www.nottingham.ac.uk/studying-effectively

DEFINITION OF AN ACADEMIC MISCONDUCT

Any activity or behaviour by a student which may give that student, or another student, an unpermitted academic advantage in a summative assessment is considered to be an act of academic misconduct and unacceptable in a scholarly community. Such action(s) will be considered under the University's Regulations on Academic Misconduct and this may lead to a penalty being imposed

DEFINITION OF PLAGIARISM

The following definition of plagiarism appears in the University Quality Manual:

Plagiarism: representing another person's work or ideas as one's own, for example by failing to follow convention in acknowledging sources, use of quotation marks etc. This includes the unauthorised use of one student's work by another student and the commissioning, purchase and submission of a piece of work, in part or whole, as the student's own.

Note: A proof-reader may be used to ensure that the meaning of the author is not misrepresented due to the quality and standard of English used, unless a School/Department policy specifically prohibits this. Where permitted, a proof-reader may identify spelling and basic grammar errors. Inaccuracies in academic content should not be corrected nor should the structure of the piece of work be changed; doing so may result in a charge of plagiarism.

Work in any year of study which is not undertaken in an Examination Room under the supervision of an invigilator (such as dissertations, essays, project work, experiments, observations, specimen collecting and other similar work), but which is nevertheless required work forming part of the degree, diploma or certificate assessment, must be the student's own and must not contain plagiarised material.

Possible **penalties** for an academic misconduct including plagiarism are:

- a) No marks to be awarded in relation to the specific material which is the subject of the act constituting an academic misconduct (thus leading to a reduced overall mark for the piece of course work, dissertation, examination question or examination script in which the specific material appears)
- b) Award a mark of zero for the entire piece of course work, dissertation, examination question or examination script in which the academic misconduct has occurred
- c) Award a mark of zero for the entire module in which the academic misconduct has occurred
- d) Award a mark of zero for all the assessments in the semester (even where this will lead to a reduction in degree class). In the case of year-long modules, this penalty may affect both semesters
- e) Award a mark of zero for the whole year (even where this will lead to a reduction in degree class)
- f) Require the student to take reassessments (as a result of being awarded zero marks) in the following session before being allowed to progress or complete their course
- g) require the student to register with the University and enrol on modules in which they need to take reassessments (as a result of being awarded zero marks) in the following session before being allowed to progress or complete their course
- h) Terminate the student's course
- i) Withdraw the award of a degree or other qualification from, and issue an amended transcript to, a former student of the University

Full details of possible School and University penalties can be found at:
<http://www.nottingham.ac.uk/academic-services/qualitymanual/assessment-and-awards/academic-misconduct.aspx>

ACADEMIC MISCONDUCT

Any activity or behaviour by a student which may give that student, or another student, an unpermitted academic advantage in a summative assessment is considered to be an act of academic misconduct and unacceptable in a scholarly community. Such action(s) will be considered under the University's Regulations on Academic Misconduct and this may lead to a penalty being imposed.

Here is a range of cheating behaviours:

1. False citation (i.e. attributing work to the wrong source)
2. Plagiarism
3. Using unauthorised sources or notes in examinations or tests
4. Dishonestly obtaining material or information prior to examinations
5. Copying from other students
6. Permitting other students to copy your work
7. Soliciting work from others (e.g. individuals, 'editors' or essay banks etc)
8. Submitting your own previously assessed work without acknowledgement (auto plagiarism)

Unauthorised Collaboration, or Collusion, occurs where:

Collusion: cooperation in order to gain an unpermitted advantage. This may occur where students have consciously collaborated on a piece of work, in part or whole, and passed it off as their own individual efforts or where one student has authorised another to use their work, in part or whole, and to submit it as their own.

Note: Legitimate input from University tutors or approved readers or scribes is not considered to be collusion.

Fabrication may take various forms but is essentially concerned with manufacturing aspects of the work produced. For example, the insertion of made-up information, data, sources, quotes, anecdotes or analysis would all amount to fabrication

Recycling or unauthorised, multiple submissions.

The multiple submission by a student of their own material is not, in itself, considered as academic misconduct. Submission of material that has been submitted on a previous occasion for a different summative assessment is, however, unlikely to be academically appropriate. The merit of such material will therefore be a matter of academic judgement and it may attract fewer (or no) marks than would have been the case if it had not been assessed previously

Note:

Plagiarism is regarded as a serious academic misconduct by the University and will be penalised accordingly. Plagiarism can be easily identified by entering suspect passages into search engines. Specialist search engines (e.g. Turnitin) are available to check all submitted work against previously published sources, including coursework submitted by students in the current or previous years. The School of Biosciences uses Turnitin to assist academic staff detect plagiarism; students may be required to submit all coursework in electronic form to facilitate automatic on-line detection of plagiarism. All BSc Research Projects must be submitted electronically to be checked by Turnitin along with the necessary hard copies (see Guidelines for BSc Research Projects).

If a student is required to attend an Academic Misconduct interview within the School for any suspected academic misconduct his/her tutor will be informed of this, together with the Head of School (or nominee), module convenor (or nominee) and the School Manager for Academic Administration (or nominee).

GUIDANCE TO HELP YOU AVOID COMMITTING PLAGIARISM

1. You are allowed to use information from other people's work provided you acknowledge the source. This can apply to a statement, Table or Figure. The best way of doing this for Tables and Figures is to add: "After Smith (1988)" or "Modified from Smith (1988)", and include the reference in your reference list.

2. If you are discussing something somebody else has said, you can say, for example: Smith (1987) claimed that coral reefs in the Pacific were damaged by high temperatures in 1975. Or: It has been claimed that high temperatures in 1975 damaged coral reefs in the Pacific (Smith, 1975).

3. If you wish to quote from previous work you should put it in quotation marks, e.g. Smith (1980) described the outcome of unprecedented high temperatures on coral reefs as: "A disaster for the marine communities in the coastal regions of the Indo-Pacific", and then stated that: "The phenomenon appears to be due to unprecedented high temperatures".

For information on paraphrasing see 8 and 9 below.

4. Authors should be cited in text either as: Smith (1975), Smith and Allen (1978), Allen (1987, 1989), or as (Smith, 1975; Smith and Allen, 1978; Allen 1987, 1989). Note that these are in chronological, not alphabetic order. When more than two authors are quoted, this should be in the form Allen *et al.* (1993) in the text, but the full reference should be given in your reference list.

5. In your "References" or "Literature cited" section, the following style (authors, date, title, journal, volume number, page numbers) should be used and references should be listed alphabetically. Provided you are consistent, you may also use any other accepted style - see journals in the library.

Smith, A. J. and Allen, N. B. (1986). Temperatures and coral reefs. *Journal of the Marine Biological Association* 86: 101-123.

Smith, A. J., Jones, K. L. and Allen, N. B. (1988). Death of corals due to high temperatures. *Thermal Biology* 27: 19-34.

6. For books, the following style (author, title underlined or in italics, publisher, place of publication) applies:

Allen, N. B. (1992). *Coral Reef Biology*. Blackwells, London.

7. For chapters in edited volumes, the following style (author, date, title of chapter, title of book underlined or in italics, editors, page numbers, publisher, place of publication) applies:

Smith, A. J. (1987). Temperature and bleaching in corals. In: *Coral Reef Biology* (N. B. Allen and C. K. Hodges, eds.), pp. 65-90. Clumber Press, New York.

8. **Paraphrasing**, i.e. verbatim or almost verbatim restatement of a passage is a form of plagiarism frequently used in essays and dissertations. The following is paraphrased from C. H. Gordon, P. Simmons and G. Wynn (date unknown). *Plagiarism - What It Is And How To Avoid It*. University of British Columbia.

Students often ask "How much do I have to change a sentence to be sure I'm not plagiarising?" If you have to ask, you are probably about to commit plagiarism! There is no set number of words that you need to change or add to make a passage your own – the originality must come from the development and expression of your own ideas.

Original work demands original thought. You should try and separate your ideas from those of others. If you use another author's conclusions then acknowledge them. If you come to the same conclusions as another author you should still acknowledge them. Once a piece of work is complete, look at each part and ask yourself if the ideas expressed are entirely your own, and whether the general language or choice of words is your own. If the answer to either is "no" the work should be credited to the original author

9. Examples.

9.1 Original

From Smith (1992):

The author has found that corals respond to high temperatures by expelling their zooxanthellae. This causes them to go white, a phenomenon known as "bleaching." Such corals soon become covered in algae, which makes it difficult for new coral planulae to settle and start a new colony (Davies, 1980). The phenomenon of bleaching is similar to the effect of a crown-of-thorns starfish (*Acanthaster planci*) attack where the polyps are digested by enzymes secreted onto the colony surface (Brown, 1990). As Jones (1972) found, *A. planci* poses a severe threat to corals in the Indo-Pacific. The recent occurrence of high numbers of these starfish on reefs has been correlated to run-off from land which contains high levels of plant nutrients (Jones, 1986). The subsequent increase in the number of algae apparently enhances the survival of the filter-feeding larvae of the starfish.

To include this text verbatim in your own work, *without* placing the entire paragraph in quotation marks and acknowledging Smith (1992) (see 3 above) would constitute plagiarism.

9.2 Paraphrased version

Paraphrased from Smith (1992):

Smith (1992) has found that corals respond to high temperatures by expelling their zooxanthellae. This phenomenon, known as "bleaching", causes them to go white. Such corals quickly become covered in algae and this makes it difficult for new coral planulae to settle and begin developing a new colony (Davies, 1980). Bleaching is similar to the effect of a crown-of-thorns starfish (*Acanthaster planci*) attack. Brown (1990) notes that this is where the polyps are digested by enzymes secreted onto the colony surface. Jones (1972) found that *A. planci* may be a severe threat to corals in the Indo-Pacific. Recently high numbers of these starfish on reefs has been correlated to run-off from land with high levels of plant nutrients (Jones, 1986). The increase in the number of algae apparently enhances the survival of the filter-feeding larvae of the starfish.

To include this text in your own work, even *with* the initial acknowledgment Smith (1992) would constitute plagiarism since it reads as if only the first sentence is taken from Smith, and the rest of the references (Davies, Brown and Jones) have been sourced and read by you and that the development and expression of the text is your own original work.

9.3 Unacknowledged version (i.e. submitting this as if it were your own thoughts or work)

The presence of high numbers of crown-of-thorns starfish (*Acanthaster planci*) on reefs has been connected to run-off from land containing high levels of plant nutrients. This causes an increase in the number of algae which results in better survival of the filter-feeding larvae of the starfish. The starfish kills corals by secreting digestive enzymes onto their surfaces. *A. planci* poses a severe threat to corals in the Indo-Pacific and their effect is similar to that caused by "bleaching", a phenomenon caused by high temperatures which results in zooxanthellae being expelled. Subsequently the dead corals become covered in algae which makes it difficult for a new colony to start.

To include this text verbatim in your own work, would constitute plagiarism since there is no acknowledgment of Smith (1992).

9.4 Acceptable version (based on information from Smith, reading the cited references yourself and drawing upon other work)

Smith (1992) quoted Jones (1972, 1986) in suggesting that the crown-of-thorns starfish poses a threat to corals in the Indo-Pacific, and that their recent upsurge may be due to an increase in plant food levels caused by an input of nutrients from land. Brown (1990) found that these multi-armed starfish killed corals by everting their stomachs onto the coral colony surface and secreting an enzyme to digest the tissues externally. The resulting "bleaching" effect is similar to that which occurs when corals are exposed to high temperatures and the zooxanthellae are expelled (Smith, 1992). Davies (1980) found that the settlement of algae on the colony surface made it difficult for new coral larvae to settle and, although fish often grazed the algae continually, he found they could not keep these under control. Recent studies have shown that plagues of crown-of-thorns starfish may be a natural phenomenon, as the fossilised remains of previous outbreaks have been found in rocks millions of years old (Cromer, 1994).

To present your work like this would not constitute plagiarism.

Note that all the references and authors used in this document with the exception of Gordon *et al.* are fictitious.

PLEASE CONSULT YOUR TUTOR IF YOU ARE STILL IN DOUBT ABOUT PLAGIARISM

17 Personal academic development goals

This table sets out the goals that you should strive for as you progress through your degree. If you can achieve these you will be well prepared for the diverse opportunities that lie ahead

	Qualifying year Year 1	Part I Year 2	Part II Year 3
Learning experience	<ul style="list-style-type: none"> Establish a strong factual base Learn the basics of the scientific method and develop a questioning approach 	<ul style="list-style-type: none"> Link knowledge from diverse sources and develop an ability to relate information Develop a critical and analytical approach to information 	<ul style="list-style-type: none"> Develop the ability to handle complex information Evaluate information and synthesise ideas Develop a creative approach to problem solving
Skills acquired	<ul style="list-style-type: none"> Cope with varying lecture styles Make effective use of library and IT facilities Acquire basic laboratory skills 	<ul style="list-style-type: none"> Consolidate information skills with extensive use of library and IT Enhance practical skills Enhance presentation skills Organise study and manage time to meet deadlines Appreciate the importance and value of team work 	<ul style="list-style-type: none"> Develop a mature approach to study Exhibit strong self-discipline and commitment Clearly articulate knowledge and understanding Respect the views of others and engage in reasoned argument
Developing independence	<ul style="list-style-type: none"> Learn to combine teacher-driven study with work based on individual initiative 	<ul style="list-style-type: none"> Make independent use of library and other information resources Acquire experience in a range of learning styles 	<ul style="list-style-type: none"> Take responsibility for self-learning Demonstrate individual style and flair Exhibit professionalism and ownership of subject

18 Personal academic development

Several mechanisms are available throughout your studies to help you achieve the goals outlined in the previous section. The way in which you use them will depend on your own needs and circumstances. By the time you graduate, you will have acquired a set of resources, some electronic and some in other formats, which you can use as the basis for promoting yourself and your achievements.

There are three main goals:

- to provide you and the School with complete documentation of your academic record and performance so that your progress can be monitored while you are at the University
- to define and document the minimum level of pastoral care which the School will provide for you, including academic and personal support
- to encourage you to reflect upon your progress at regular intervals and record self-evaluations in relation to your academic work, leisure interests and general skills. These activities will help you to improve your learning, focus your thinking about career options and build up an effective CV. They will also contribute to tutors' references for you

Personal Tutor

You will be allocated a personal tutor when you first register in the School. Details of how the tutorial system works are given in the *Study Skills booklet*. Your tutor may teach modules that relate to your degree programme or may come from a separate area within the School. In your first semester, your tutor will also guide you and your fellow tutees through the Academic Development and Employability module (D21BP1). Your tutor can offer you a great deal of guidance, wisdom and support and you should expect him/her to take a close interest in your academic and personal development throughout your studies.

It is worth remembering that members of academic staff have several roles besides teaching and tutoring. They are actively engaged in research, which probably involves supervision of research students and postdoctoral researchers, and also have various administrative functions vital for the smooth running of the School.

You can expect your tutor to support you in the following ways:

- take an interest in your academic progress, check on your well-being from time to time, and offer you opportunities to discuss matters of concern. provide you with your examination marks at the end of each semester and help you to reflect on the feedback you receive.
- be available to discuss your choice of modules
- in the event of illness and absence for other justifiable reasons, your tutor should be informed of the circumstances. S/he will also be made aware of any lapses in your attendance at classes which give cause for concern.
- provide a personal reference for you, for example to obtain vacation work or when you seek employment after graduation. This is a good reason for making effective use of meetings and establishing a sound working relationship. A supportive referee needs to have good information and will try to set your academic qualities and achievements in a wider context.

Meetings with your tutor may be scheduled or take place less formally at the request of either of you. During the first semester, scheduled meetings will occur as part of D21BP1. During the rest of your course, the University requires that you meet your tutor at least

three times per year. This will normally include meetings at the start and end of each semester, the latter being when you receive your module results and discuss your progression. However, this is a minimum and you would be wise to have more frequent contact.

Make use of all these opportunities. Check your email every day and be sure to respond to requests for meetings, either scheduled or informal. Apart from being discourteous, missing a meeting may mean losing out on vital information or decisions. If for any reason you wish to change your tutor, you should make your request to the Senior Tutor or through the School Office.

Career Advice and CV Development

Each year during your undergraduate course, a special session will be provided by University Careers Advisor(s) responsible for Biosciences students to guide you in developing your longer-term aims and interests. Careers Advisers do "give advice on how to set about assessing and building up an account of your achievements and skills in your curriculum vitae (CV)."

During Years 2 and 3, your tutor will be able to comment on drafts of your CV as you complete them and further specialist help is always available from the University Careers Advisory Service.

Confidentiality and Records

Your tutor will respect the confidential nature of your conversations. If at any time s/he judges that it would be in your best interests to inform other members of School or University staff, s/he will advise you of this and suggest how this can best be achieved. Your tutor will always seek your agreement before involving anyone else and will discuss with you when, to whom and how any sensitive information might be conveyed.

It is advisable to make a short record of all personal tutorials or other meetings. The record may take whatever form you wish, ranging from a brief note (perhaps simply recording the date of the conversation) or general summary, to something more detailed. You should not write down anything you would not want other tutors to read, although it may be important to signal the existence of personal or confidential matters affecting your work. Your tutor can help you by suggesting appropriate wording.

19 Academic tutoring and school of Biosciences

Academic tutoring is the support which the School provides to students in addition to formal teaching. It is complementary to the University's central support services and pastoral care provision.

The objectives of Academic Tutoring are as follows:

- Helping students to acquire the necessary study skills to pursue their studies successfully.
- Addressing problems of knowledge and understanding of the subject experienced by individual students.
- Addressing the problems of individual students with particular aspects of their modules.
- Providing students with an overview of their academic progress at module and programme level.
- Assisting students with their academic choices e.g. module enrolments, programme pathways.
- Providing students with feedback on their assessments so as to improve future performance.
- Contributing to the acquisition of key employability skills.

The School takes its responsibility for academic tutoring very seriously and engages in the following activities to ensure that students are properly supported:

- One-to-one meetings with the Personal Tutor, for personal development, pastoral support and guidance (e.g. on module choices)
- Meetings with Course Managers for module guidance, either informally or at School Module Enrolment Days.
- Tutorials/seminars occurring as activities within some or all of the modules comprising a degree programme.
- Credit-bearing academic tutoring and study skills module D21BP1 **Academic Development and Employability** Study-skills embedded in academic modules e.g. D21BF2 Foundation Science; D211F3 The Biosciences and Global Food Security; D224Z4 Research Techniques in Agriculture, Plant and Animal Science; D224P6 Molecular Techniques in Biosciences, D224E2 Communicating Biosciences.
- Study-skills embedded in student's undergraduate project work or postgraduate dissertation.
- Drop-in support sessions based around mathematics and statistics.
- Written feedback on formative or summative assessments provided by module coordinators/tutors. This is extensive in the School and is provided through:
 - individual feedback on coursework provided by written comments and mark allocation based on transparent marking schemes
 - generic feedback forms posted on Moodle one week after each exam board which
 - (a) highlight examination questions on which students' performance could be improved
 - (b) suggest strategies for improving performance in those questions
 - (c) give general comments about technique.
 - full and constructive comments provided by exam markers, to which students have access through individual appointments with module conveners
 - module report forms which are collated by Module Conveners from students' comments and made available through Moodle.
- Student led-seminars e.g. D224F9 Analysis of Bacterial Gene Expression.
- Peer support groups e.g. D235F5 Molecular Microbiology and Biotechnology, D235A8 Companion Animal Science and D23BA1 Livestock Production Science, D223F7 Virology (problem-based learning) and D236M1 (problem-based learning).

- Appointments with module coordinators/tutors; specifically the School provides three formal opportunities per year for students to obtain detailed module information and advice at its Module Registration Days.
- 'Office hours' system for accessing module coordinators/tutors.
- The use of a flexible and comprehensive virtual learning environment (Moodle), together with on-line discussions between tutors and students.
- Links to central support services e.g. Academic Support, the Counselling Service and the Student Services Centre.
- Assistance and guidance on academic administrative matters provided by the School Office.
- Encouraging students to make use of central on-line study skills resources e.g. 'Study Skills'
www.nottingham.ac.uk/studyingeffectively
- Assistance with any personal support or guidance matters from the School Senior Tutors

20 Attendance monitoring

Students must attend all teaching activities necessary for the pursuit of their studies, undertake all associated assessments and attend meetings and other activities as required by their School or the University. Where students face difficulty in attending sessions or undertaking assessments and examinations, it is their responsibility to inform their School of this fact and to provide a satisfactory explanation. Please see link below for further details on attendance regulations at the University:

www.nottingham.ac.uk/academicservices/qualitymanual/registrationattendanceandstudy/regulations-governing-attendance-and-engagement.aspx

Individual Schools and Departments have systems in place to monitor attendance during the academic year. Unauthorised absences are reported to the Registry and recorded as appropriate. Where students are absent without authorisation, to the point that it is not possible to continue with the course, the Registry will write to the student stating that they will be deemed to have withdrawn from the University and their student record will be amended to show that they have withdrawn.

Where required the University will report non-attendance to appropriate authorities including the UK Border Agency.

21 Complaints and appeals procedures

Details of the University's Complaints and Appeals Procedure can be found at:

www.nottingham.ac.uk/academicservices/qualitymanual/complaintsandappeals/academicappealpolicyandprocedure.aspx

The procedure regarding a complaint concerning your course is that in the first instance you should contact the lecturer concerned. If the matter cannot be resolved, the next points of contact would be:

- Module Convener
- Course Manager
- Teaching Manager
- Head of Division
- Head of School
- Student Year Representative (names are on the Learning Community Forum notice board together with the Module Convener)

Students are encouraged to involve their Personal Tutors at any stage, whether the matter of concern is of an academic or personal nature. Students also have the right to bring matters of concern before Learning Community Forum.

22 Industry placements

All of the 3-year degree courses (not Master of Nutrition and Dietetics) have the option of being combined with an intercalated year in industry. Students are welcome to make the most of our extensive industrial links by arranging to combine their degree with an industrial placement between years 2 and 3. See further details and profiles of recent student experiences at:

www.nottingham.ac.uk/biosciences/prospectivestudents/undergraduate/industryplacements.aspx

23 Study abroad opportunities

23.1 Year Out and Erasmus

The School of Biosciences has established an ERASMUS programme of Student Exchange with a number of European Institutions in France, Germany and Spain.

All students taking honours degrees in the School (except MNutr) are able to take an additional Certificate in European Studies (normal entry requirement is at least a grade B in the second language that the student intend to improve at GCSE level). The Certificate consists of an additional year over and above your 3-year BSc degree programme and commences after the second year in September of Semester 5 and concludes at the end of Semester 6. You will then re-join the normal 3-year programme at the beginning of Semester 7.

Students either enter the School having already applied to take the Certificate or they may indicate their intention to apply for transfer onto it once they are here, usually following a meeting which outlines the principles of the Certificate. In both cases confirmation that registration is to be maintained or that application to transfer has been accepted must be received in writing by the School Office.

Students taking the Certificate normally follow preliminary language training during Year 2 (Part I) by taking 10 credits of French, German or Spanish languages (held in the Language Centre, University Park) and 50 credits of Science modules in each of semesters 3 and 4. In Semester 5 and 6; students will be on placement in an academic Institution in another European country where they will normally follow courses or a project, the courses must be taken in the language of the chosen Country. Student will also complete a European Placement module during semester 5 and 6.

The ERASMUS programme is on an exchange basis. Thus it is suggested that students make contact with ERASMUS students within the School who are from the host University together with those Biosciences students who were at the host University in the previous year. Both these contacts can be invaluable in providing assistance and information.

Further information about the scheme is available from Ms Elena Staves (School Office) or Dr Zinnia H. Gonzalez-Carranza (Division of Plant and Crop Sciences, SB).

SUPPLEMENTARY REGULATIONS FOR THE EUROPEAN CERTIFICATE

In addition to the normal progression rules for undergraduate study, the following progression rules apply to the European Certificate element.

Part I candidates achieving a mark of 50% or more in each of the Autumn and Spring Semester language modules will progress to the language module in the Autumn of the year of the Certificate in European Studies (Biosciences). Part I candidates achieving a mark of 40-49% in the Autumn and / or Spring Semester language module(s) will normally be advised to discontinue with the Certificate in European Studies (Biosciences). Candidates achieving a mark of less than 40%, at first attempt, in the Autumn and / or Spring semester language module(s) will be advised to discontinue with the Certificate in European Studies (Biosciences). If, after reassessment, candidates do not achieve a mark of at least 40% in the Autumn and / or Spring Semester language module(s) they may not continue with the BSc with a Certificate in European Studies (Biosciences).

The above regulations as specified for candidates obtaining marks at first attempt, will be followed for students obtaining marks of 40% or more at reassessment. Candidates on the year of the Certificate in European Studies (Biosciences) between Part I and Part II who obtain a mark of less than 40% in the language module cannot progress onto placement in the following semester. Such candidates are offered the opportunity either:

- 1) to transfer to the equivalent 3-year BSc degree without European Studies at the start of the next academic year and thus do not take any further language modules. Or
- 2) to be reassessed in the Autumn semester language module in the August / September reassessment period.

If, after reassessment, a mark of 40% or more is achieved candidates may re-join the Certificate in European Studies (Biosciences) in the following academic year. If a mark of less than 40% is achieved at reassessment candidates will be offered 1) above.

In order to proceed to Part II of the degree BSc with a Certificate in European Studies (Biosciences) candidates must attain pass marks in assessments related to the European Year. Candidates who fail to attain satisfactory marks in the assessment undertaken during the European Year shall be offered the opportunity to transfer to the 3-year equivalent BSc degree without European Studies.

Candidates who fail to achieve the criteria for progression onto the three year equivalent degree without European Studies shall not be permitted to continue on this degree but may be offered the opportunity to transfer to the Ordinary degree.

MARKING SCHEME FOR THE EUROPEAN YEAR

European Placement Module:

Fifty percent of the mark correspond to the attendance and assessment of the courses taken abroad. The other fifty percent correspond to one scientific review, one cultural essay and one translation (see below for information).

50%: Attendance and assessment of courses taken abroad.

50%: Essays and translations.

<i>Activity Type</i>	<i>Information</i>	<i>Length</i>	<i>Weighting</i>
Attendance and assessment of courses abroad	Students must attend and sit the exams abroad	Not applicable	50%
Essay 1	Scientific review	4000 words	17%
Essay 2	Culture research paper	4000 words	16%
Translations	Science into English	10 * 400 words	17%

23.2 Studying outside of the UK

Malaysia Campus

Students on the BSc Biotechnology, BSc Agricultural and Crop Science, BSc Nutrition, BSc/MSci Environmental Science, BSc Environmental Biology and BSc Plant Science courses may have the opportunity to study for one semester or full academic year at our Malaysia Campus as part of their three-year degree programme. All teaching at our Malaysia Campus is in English and the modules and exams are very similar to those in Nottingham. Students from the UK campuses pay a reduced tuition fee during their time abroad and living costs in Malaysia are lower than in the UK.

See link: www.nottingham.edu.my/index.aspx

Universitas 21

Nottingham is a founder member of Universitas 21 which is a global alliance of key universities. You will be able to apply to spend one semester (the first of your second year) studying in one of our partner institutions (including Australia, China, Korea, Mexico, North America, New Zealand, Singapore). Competition for these placements is high but the rewards are considerable.

Find out more about study abroad opportunities at www.nottingham.ac.uk/internationalstudents/exchanges/index.aspx

Interested? What to do next

Don't miss the Study Abroad Fair, organised by the International Office, which will take place in November 2014. Here, you will learn about all the study abroad options open to you and how to apply. You will also be able to meet with students who have already studied at overseas campuses.

Interested students are advised to find the Study Abroad Team on Facebook to be kept updated with deadlines and events at: www.facebook.com/UoNStudyAbroad and the International Office website:
www.nottingham.ac.uk/internationalstudents/exchanges/index.aspx

24 Channels of communication

Dissemination of information is an on-going process during the academic year; this will come from both the School Office and academic staff. We use several ways to give out information.

- **Email** - Email is the normal means of communication to individuals or class groups; your tutor and module conveners will email regularly and it is also a good way for you to contact academic staff. However, this and other media should not detract from personal meetings, which are necessary for the communication of several matters including the conveyance and discussion of examination.
- **Moodle** - Moodle is the online learning environment across the University. The resource allows you to access lecture notes, find links to external learning resources, access self-test exercises and assessments, participate in online learning activities, submit assignments and collaborate on group projects. You can log in using your University username and password the day after you have completed your registration online. w: moodle.nottingham.ac.uk
- **The Student Portal** - The Portal is a central part of the University's communication system for staff and students. Make sure you have access to it at: my.nottingham.ac.uk/media/uk/ac/nottingham/compass/layout/public
- **Social Media** - The University of Nottingham uses the latest technology to bring Nottingham to life and to ensure that you can experience and interact with the University community at any time, see: www.nottingham.ac.uk/connect/nottinghamconnect.aspx
- **Blue Castle website** - students can view their marks, progression status and final award information electronically at: bluecastle.nottingham.ac.uk.

25 Students/staff consultation

The courses you are taking have evolved over a number of years and incorporate many features arising from student feedback and evaluation. Each department has its own procedures for allowing students to participate in the evaluation and future development of courses.

Broadly, two channels exist:

- feedback evaluations which enable you to comment on the content, style and objectives of modules; we urge you to take the time and effort to complete these so you and future students can play a role in improving our teaching
- the Learning Community Forum (LCF) consists of course representatives of undergraduate students and teaching staff who discuss a wide range of academic and non-academic matters. Anyone who has comments, criticisms or suggestions that they wish to be discussed should contact one of the representatives, whose names will be notified to you during the first semester. Minutes of the Learning Community Forum will be made available electronically.
- The Student Guild also elects student representatives to the School Board and other School committees. If you want to influence academic procedures in the School and University on behalf of your fellow students, you must join the Guild first.

26 Office hours

The School office hours policy, see below:

- Appointments for meetings with staff should be requested by students by email or in person (by phone or office notice board). Requests by email can be made at any time.
- Staff should respond to such requests by email within two working days (both during term and outside term-time). Staff are not obliged to send their responses outside of normal working hours, nor during official University holidays, nor when on vacation. They should put out-of-office messages on their emails during vacations and respond within two working days upon return.
- Following a request, appointments should be arranged with the student at a mutually convenient time, normally to be held within three working days of the request.
- Once an appointment has been made, both the staff member and the student are expected to honour the appointment. Should either be unable to attend they should email to cancel prior to the meeting.
- Staff have the option of restricting their availability to students to particular days or times of day (other than in emergencies). In this case, they will communicate their preferred availability to their tutees and to other students they see on a regular basis.

27 Quality assurance

The primary aim of the University of Nottingham is to sustain and improve the high quality of its provision as one of the leading research-led universities in the United Kingdom. It is also committed to providing a learning environment of the highest quality for students, in which first class teaching is underpinned by excellent research. The School of Biosciences endeavours to maintain these goals in the Biosciences, where relevant in collaboration with other schools, in the following ways:-

- by recruiting motivated students with a proven record of high level of learning;
- by providing a broad education across the discipline;
- enabling the development of an analytical and critical appreciation of scientific ideas and problem solving;
- providing a learning experience enriched by an active research environment;
- enabling the development of independent learning and skills for a wide range of careers within and outside the biological sciences;
- to ensure that students receive appropriate support and guidance in their academic development and career planning;
- to identify and support the academic and pastoral needs of individual students;
- to provide a flexible, effective and adequately resourced learning environment, and
- to maintain and improve teaching and learning through effective management structures in line with the University Quality Manual.

As part of an ongoing process of improving quality, some of our teaching facilities have been recently refurbished and modernised. We look to our students to help us maintain these areas in good condition for the benefit of future generation.

28 Coursework and examination feedback

Feedback is generally provided in three main forms i.e on i) assessed coursework, ii) examination performance and iii) general aspects of each module. For each module, in addition to the individual marks given for assessed coursework, you will receive an overall module mark and the end of each semester you will receive a set of module marks for the semester from your personal tutor. Your module marks are confidential and not shown to other students. Individual mark components (e.g. coursework marks) are also confidential; the only exception to this is when you receive a mark for a piece of 'group work' in which all members of your group receive the same mark. The sections below provide further details about feedback.

Coursework Feedback

Coursework feedback is normally provided through written comments on your work. For many pieces of coursework, a cover sheet will be returned with your work to explain the mark received and give advice on how your work could be improved. For other pieces of non-examination assessed work, it may not be feasible to provide written comments on your work, for example, a group oral presentation; in such cases, feedback may be provided verbally or by email. Feedback for other assessed work e.g. laboratory practicals, may be provided in other ways as appropriate to the assignment set. Whilst the manner by which you receive coursework may vary depending on the type of coursework set, the purpose of the feedback is to provide a mark for the work together with constructive comments to help improve your performance in future assignments. If you wish to discuss your performance in any assessed work, you should contact the module convenor.

Module convenors will set a date by which you must submit coursework and a date when you can expect to receive feedback on your coursework. This information will be provided when the module convenor sets the piece of work. In normal circumstances, marked coursework and associated feedback should be returned to students within 21 days of the published submission deadline, i.e. students submitting work before the published deadline should not have an expectation that early submission will result in earlier return of work. See details

<http://www.nottingham.ac.uk/academicservices/qualitymanual/assessmentandawards/feedback-to-students.aspx>

Examination Feedback

After each of the main examination periods, students are advised that examination feedback will be posted on Moodle. This will include: i) feedback on examination questions on which students' performance could be improved, ii) suggested strategies for improving performance in those questions and iii) general comments about examination technique etc. Student wishing to discuss their examination performance should contact the relevant module convenor(s).

General Feedback

A copy of the Module Report Form, which is a summary of the discussion/feedback with students at the end of each module, can be found in the Moodle folder for the module. This feedback sheet is used by module convenors to identify areas of the module which students felt worked well, and areas which could be improved; in the latter case, the module convenor will make appropriate academic adjustments to the module for the following academic session. The areas of feedback covered by the module report form follow the headings detailed in the Module Report Form.

The University's Quality Manual provides information on good practice for feedback on assessed work and what you can expect to receive as a student at the University of Nottingham – see <http://www.nottingham.ac.uk/academicsservices/qualitymanual/assessmentandawards/feedback-to-students.aspx>

29 Student services/departments

29.1 Student services centre

The Student Services Centre can provide you with information and support throughout your student life. They are approachable, knowledgeable and most of all they are there to help. Student Services Centres are based at Sutton Bonington, University Park and Jubilee Campuses.

The Student Services Centre is the home for Academic Support, the Disability Policy Advisory Unit, Financial Support, the majority of the Registry's front line services and Student Fees. They also provide a front-line service for Graduation.

More information at www.nottingham.ac.uk/ssc

29.2 School office

The School Office is located at in room A2 (Main Building near the entrance) at Sutton Bonington. It is the main administrative office for the School of Biosciences. Details and useful information can www.nottingham.ac.uk/~sazinfra//student/Current-students.htm.

Students based at the Sutton Bonington Site should raise administrative module and course queries with the School Office (Main Building). Students based at University Park should refer course and module queries to their Course Manager or Emma Hooley.

Contacts below

Sutton Bonington

Gill Fox 0115 951 6007
Kathy Wilson - 0115 951 6007

University Park

Emma Hooley – 0115 951 6262

29.3 Libraries

The James Cameron-Gifford Library on SB Campus, together with Hallward Library (at UP), George Green Library (UP) and the Medical School Library (QMC and Derby) provide information on all subject areas covered by the School, plus study areas and computing facilities. The on-line catalogue (UNLOC) enables you to search for material held at all branches of The University of Nottingham library. Material from the other campuses can be obtained swiftly for you. During Semester 1 you should attend an introductory lecture provided by the appropriate library. This will be followed up by a tutorial providing an introduction to key resources and discussion on the critical interpretation of published materials as part of the Academic Development and Employability module.

Learning these basic information retrieval and evaluation skills is essential - you will need them for essays and projects throughout your course. As you progress, more specialised studies are undertaken and you must become familiar with the experimental data published in various journals. Acquaintance with published research provides the foundation for most final year research projects. You should not forget to read the more popular scientific press such as *New Scientist* or *Scientific American*, as well as those appropriate to your discipline.

The James Cameron-Gifford Library at Sutton Bonington has over 100 reading places, including quiet areas and a number of PCs (see below); it links with several of the Computer Rooms. The

Library stock has been developed to support teaching and research in the Schools of Biosciences and Veterinary Medicine, and the library service also provides access to a wide range of databases, electronic journals, and e-books.

Your University Card is also used as a Library borrower's card, and is required for entry to the libraries at University Park campus.

The Library is open (Term Time):
Monday to Friday 8.00 am - 9.45 pm
Saturday 9.00 am - 4.45 pm
Sunday 9.30 am - 4.45 pm

Opening hours may differ during vacations and are increased during exam periods. More information can be found on the Libraries website at:
www.nottingham.ac.uk/library/index.aspx

29.4 IT facilities

You should aim to enhance and develop your keyboard, word processing and information processing skills and apply them in the preparation of assessed essays and projects. Dissertations and other forms of assessed coursework must be presented in typed or computer-printed form. Poor presentation, spelling and grammar may be penalised by examiners; word processing software can make a contribution on all those fronts as well as greatly facilitating the editing process.

Members of staff marking coursework will point out errors in spelling, grammar, structure, and reference citation. Note these carefully and use them to improve your writing skills. If you have particular difficulty, consult your Tutor - do not let a problem with language prejudice your performance.

Computer Rooms

Information Services (IS) and the School maintain networked PC user areas (Computer Rooms) which are used for teaching, computer-assisted learning, statistical analysis, modelling and general IT applications at all campuses. IS manages the computing service and provides full printout facilities. You will be given an introduction to this system and the facilities during the first week of Semester 1.

All IT facilities in the School are connected to the University Campus network. Access to all on-line university and internet services is available via the 'JaNet' organisation, which provides a very fast WAN network to connect together education and research institutions in the UK.

The Library has three computer rooms, as well as PCs and plasma screens within the learning areas. The primary role of Computer Teaching Room B8 and Computer Teaching Room B9 is to accommodate taught classes. Computer Teaching Room B9 has 26 PCs and includes audio-visual projection facilities. Computer Teaching Room B8 has 15 PCs and can be joined to Computer Teaching Room B9 by drawing back a flexible partition when more space is required for larger classes; 11 PCs and 4 OPAC UNLOC terminals are available in the Library. These rooms and the Learning Hub areas are free for individual users when not booked for teaching. Check the notice board outside these rooms to ensure that no classes are taking place before you walk in. A further computer room (A07, with 120 PCs) is located in the Gateway Building, ground floor, at Sutton Bonington Campus.

A range of software applications can be found on all PCs in computer rooms. All student and public access machines are running Windows 7 and Office 2013.

Scanning and printing (mono or colour) are done via multi-function printers in and around the Library and computer rooms.

Once you have registered with the University you will be given a username and password. Undergraduate usernames give access to electronic mail, the Internet and connection to remote

information services. The campus has wireless connectivity in all buildings and some outside seating areas. Feel free to make as much use of the system as you wish, within the limits of the user agreement.

E-mail is the preferred and main method of communicating with your tutor, staff and other students, as well as for many external communications. Be sure to check your e-mail regularly. Use only the email username and address you have been given (username@nottingham.ac.uk) otherwise you may miss important information.

You should NEVER reveal your password to another person, or allow other people to use your login credentials!

The Portal and the Virtual Learning Environment

The Portal (see link from home page of University's website) is a central part of the University's communication system for staff and students. It gives you access to all the resources you need. (If you have problems getting into it, seek advice from IT support via the IT helpdesk - the Student IT Helpdesk number is 13333).

From the Portal, you can reach University services and sources of important information, including your Module Information, Exam timetables, Past exam papers, Reading Lists, School and Course Information, ePARS, Library and Information Services, Shuttle bus Timetables and much more. You can also customise the Portal pages to suit your needs.

The Portal gives access to the University's Virtual Learning Environment (VLE). This is where your module information (class lists, lecture notes, reading lists, module documents, coursework assignments, discussion groups etc.) is deposited. By agreement with lecture staff, you can also use it to submit coursework electronically and to receive your coursework marks.

Loan laptops

Ten laptops are available for loan from the James Cameron Gifford Library lending desk. All the laptops are set up in the same way offering a selection of University standard applications and are fully compatible with the University wireless networked services. Each of the laptops are configured comparably to the computer room PCs, providing access to Microsoft Office, anti-virus protection and the internet but with the advantage of mobility. The laptops are available for use only in the Library and Learning Hub areas and are available for loan for 3 hours at a time.

14 iPads are also available for loan for use in the Library and Learning Hub areas and are available for loan for 3 hours at a time.

29.5 Photographic section

The Photographic Section is based in Main Building (second floor) at Sutton Bonington Campus and is run by Michael Beard. The unit provides general photographic, digital imaging, poster printing and colour photo-copying services. Further details can be found at the Photographic Unit, Room C22 Main Building, Sutton Bonington Campus.

29.6 Academic and disability support

Services for students who have a disability, dyslexia and/or a long-term medical condition

At the University of Nottingham we are strongly committed to equality of opportunity for all our students. We welcome disabled and dyslexic students and aim to ensure that, as far as possible, appropriate support is offered to meet your needs.

Full information on the range of support and services available for students is available at www.nottingham.ac.uk/studentsservices

Disclosure and confidentiality

We will respect the confidential nature of information you provide and act in accordance with data protection regulations. Confidential information will only be shared within the University on a need-to-know basis.

If you have a disability, dyslexia or other Specific Learning Difficulties (SpLDs), we would strongly encourage you to make early contact with us, before submitting your application. Knowing about your requirements in advance can help us to prepare and arrange support in time for the start of your course.

We would therefore encourage you to disclose your disability or SpLDs to us as soon as possible. Failure to do so may affect our ability to make some of the adjustments that you require.

For more information about confidentiality and disclosure, please see:

www.nottingham.ac.uk/studentsservices/supportforyourstudies/disabilitysupport/studentdisclosureandconfidentialitypolicy.aspx

Eligibility

If you are disabled or have a long term medical condition, you will need to provide evidence from a medical professional (such as a GP, consultant or specialist nurse) in order to access our services and support. For more information about our medical evidence policy, please see:

www.nottingham.ac.uk/studentsservices/supportforyourstudies/disabilitysupport/medicalevidencepolicy.aspx

If you are dyslexic, you will need to provide a report, in English, from an educational psychologist or a specialist teacher, dated after your 16th birthday. If you have dyspraxia or AD(H)D, or other Specific Learning Difficulties you will need to have a letter or report from a suitable, qualified professional; for example an educational or occupational psychologist or medical practitioner

What we can offer you...

Academic Support (AS) and Disability Support (DS)

Academic Support (comprising Dyslexia Support and Study Support) and the Disability Support Team are located in the Student Services Centre (SSC), in Portland Building on University Park, and by appointment on our Jubilee and Sutton Bonington campuses, as well as other teaching sites.

We can assist with queries regarding:

- Support in making the transition to University
- Liaison with your School or department about any impact your condition may have on the study elements of your course
- recommendations to academic staff for reasonable adjustments in teaching
- recommendations and referral for adjustments to examinations and assessment
- access to alternative formats such as Braille and large print
- residential accommodation – adapted study bedrooms
- accessible transport around and between campuses
- applying for Disabled Students' Allowances

Academic Support also provides support for students who wish to develop their strategies for academic writing and time management.

If you would like to contact us please phone the Student Services Centre on (0115) 9513710

or email disability-support@nottingham.ac.uk
or dyslexia-support@nottingham.ac.uk

The University of Nottingham ACCESS Centre (UNAC), in the Student Services Centre, provides assessments for students who have applied for Disabled Students' Allowances.

Disability Liaison Officers (DLO)

The School appoints Disability Liaison Officers, who provide a point of reference, advice and guidance for members of staff and students in the School about student disability issues and support. The DLOs are part of a network that meets regularly to share information and good practice. DLOs liaise with both the Academic Support and the Disability Support Teams, as necessary, in relation to individual students and general policies and procedures.

If you have any requirements or concerns talk in the first instance to your DLO - or contact your personal tutor.

School Disability Liaison Officer (DLO)

The **DLO** for the School of Biosciences is Ms Rebecca Cameron (Tel: 01159 951 16003) Fax 0115 951 6032, email: Rebecca.cameron@nottingham.ac.uk. Located in room A6, Main Building at Sutton Bonington Campus.

29.7 Careers and employability service

Careers and Employability Service

Many first year students think it is too early for them to start thinking about their future career, but in our experience it is never too early. By making the most of your time at university you can develop skills and build experiences that will be of interest to your future employers.

You could:

- join a **society** or **sports team**
- complete an **Advantage Award** module
- find a **part-time job** through Unitemps.

For more information about the Advantage Award, Unitemps or other ways to make the most of university life you can visit our webpages www.nottingham.ac.uk/careers or speak to a member of the careers team.

Whether you have one or several career ideas or none at all, it is a good idea to start researching possible career options. There are a number of ways the Careers and Employability Service can help you to do this:

- **Speak to a Careers Adviser.** You can book a one-to-one appointment to discuss your career ideas or questions at Sutton Bonington Campus or at University Park. A careers adviser is based in the Student Services Centre, Sutton Bonington Campus, two days each week. At University Park the Science Faculty Careers Team are based in B08 Pope Building.
- **Meet employers on campus.** Throughout term time there will be a range of different employers visiting Sutton Bonington Campus and University Park. While you're in your first year you can attend these events to find out about different industries and companies, which will help you with your career planning.
- **Attend a workshop.** There are a series of workshops held at Sutton Bonington Campus and University Park. These are free for you to attend and could help you with career ideas, making successful applications or developing job hunting strategies.
- **CV Reviews.** Whether applying for work experience, a summer internship or a part-time job you can have your own CV reviewed at Sutton Bonington Campus or University Park.

To book an appointment or CV review, or to book a place at an employer event or workshop visit: www.nottingham.ac.uk/careers/login

To find out about the workshops and events, check your university email to find your weekly Biosciences Careers bulletin. You can also follow @UoNCareers and @UoNBioscareers on twitter.

If you have any questions or if you would like to find out more about The Careers and Employability Service, please do visit one of the careers offices:

- **Sutton Bonington Campus** – Student Services Centre, Main Building, Sutton Bonington Campus
- **Science Faculty team** – B08, Pope Building, University Park

30 Health, safety & security

- The research buildings are open to students from 08:30am until 18:00pm, Monday to Friday, except public holidays and University holidays. If for any reason you have to be in the building outside of these times, you must be supervised by an academic member of staff.
- There are lifts available in all teaching buildings for use by disabled students. The other use of the lifts is for movement of goods, and should not be used for other purposes.
- The School has its own Safety Handbook which is available on the web at www.nottingham.ac.uk/~sazintr//safety/index.htm

Fire

- Fire alarms in the teaching buildings are tested at a regular time (eg Wednesday at 10 am in the Main Building). In the event of fire in the building the alarm will sound continuously. In the event of this the lecturer in charge of your class will organise evacuation of the building to the relevant assembly point. Fire exits are clearly sign-posted. Re-entry into the building after a fire alarm is given by the Fire Monitor.

Safety

- Safety in the building, especially in the Laboratories is paramount. See further reference to this matter under 'Practical Classes'
- Practical classes are continuously supervised by an academic member of staff with the support of demonstrators and occasionally technicians. You should not enter a laboratory until a member of staff arrives.
- Suitable protective clothing must be worn for laboratory classes (see 'Practical Work').
- Defined procedures must be followed for the disposal of certain types of laboratory waste, such as syringes and syringe needles, broken glass, organic solvents and microbial cultures. Instruction on the correct disposal of these and other items will be given in practical classes.
- Safety in Fieldwork. Field Course safety information and the Code of Practice for students can be found at:
www.nottingham.ac.uk/~sazintr//safety/Field-Course.htm

Accidents & First Aid

- For minor injuries, first aid boxes are available in all laboratories and certain offices. In such situations it is likely you can deal with such injury yourself.
- Where an injury is more serious a qualified 'First Aider' should be called. Names of First Aiders are listed on the School's web pages.
- If a 'First Aider' is not available or if further treatment is required, you will be taken to the Cripps Health Centre or A&E at Queens Medical Centre in extreme situations.
- All accidents, whatever their severity, must be reported on an accident report form available from the member of staff taking the class at the time of the accident and will supervise completion of the form.

Food & Drinks

- On no account should food and/or drink be taken into a laboratory, lecture theatre or computing rooms.

31 Modules

Contemporary Agricultural systems D212A2

Module Convenor: Mr Michael Davies (MW) Michael.davies@nottingham.ac.uk

Lecturer: Dr Paul Wilson (PW)

Module Details: A level 1 module taught in the Spring Semester at Sutton Bonington. The module consists of an overview lecture followed by farm visits and student centred learning based on four farm research reports. 10 credits

Aims: The module aims to provide an overview of practical agricultural systems within commercial UK farm contexts. A range of fundamental concepts of agricultural systems and techniques are introduced via a series of on-farm visits and explanations. The topics of the visit may vary dependent upon the issues affecting the agricultural industry in any one year, but example topics covered include the following: dairy production, arable production, soils, agri-environment interactions, labour and machinery management, farm business systems, water and waste management, mixed farming systems. Students will further develop the concepts introduced via directed student centred learning, including integration of current research findings, leading to the production of four assessed reports.

Learning outcomes: Learning outcomes for this module can be found on: modulecatalogue.nottingham.ac.uk/Nottingham

Lecture Programme:

Week 1: Introduction: Farm Business Systems - core concepts

Non Lecture Programme:

Please note that the order of the programme may change. Topics may vary depending on the issues affecting the agricultural industry in any one year.

Week 2: Labour and Machinery Management

Week 3: Dairy Production

Week 4: Arable Production

Week 6: Mixed Farm Systems

Week 7: Soil Management

Week 8: Water and Waste Management

Week 11: Agri-environmental interactions

Coursework: Coursework will count for 100% of the overall mark for this Module and consists of four 'Farm Research Reports' (maximum 1000 words). The reports will follow, although not necessarily be restricted to, four of the farm visits. The reports will test students' ability to place the information gained from the visits in the context of contemporary markets, policies and research findings.

Assessment:

Coursework 1	50	Farm System Report: Calculations, production of tables and 1000 words text
Coursework 2	50	Farm System Report: Calculations, production of tables and 1000 words text

Recommended Reading:

Anon (2013). Farm Management Handbook 2013/2014, 34th Ed, The Scottish Agricultural College. Library location: S561.F2.

Nix, J. (2013). Farm Management Pocketbook 2014, The Andersons Centre. Library location: S561.N4. Soffe, R.J. (2003). Primrose McConnell's The Agricultural Notebook, Twentieth Edition, Oxford: Blackwell Science.

Dissertation in Environmental Science C11BE1

Module Convenor: Dr Barry Lomax barry.lomax@nottingham.ac.uk

Lecturers: Environmental Sciences tutors

Module Details: Level 1 Autumn and Spring – Full year, 20 credits

Pre-requisite(s): None.

Note: Module **C112E6** is compulsory for Environmental Science undergraduates and is spread across the autumn and spring semester of year one.

Aims: In the first week of semester 1, there will be one half day of formal training (~3 hours) associated with the construction of reports in the style of a scientific paper. You will also be expected to attend three academic tutorials each semester to discuss various aspects of the module. Your performance during these tutorials will be monitored and maybe used in conjunction with your dissertation to inform on the overall module mark.

There are three assessed exercise within the module: two assessments will be based on writing abstracts from published papers during the autumn semester (25%) and a dissertation on a specified topic of <5000 words in the spring semester (75%). Additionally in the final week of semester 1 you will be asked to submit to your tutor a copy of your literature search

This module will enable you to:

- Use the library and other sources
- Read, understand and synthesise primary literature
- Produce a Literature review within a specified word limit
- Develop your written presentation skills within the constraints of an editorial system
- Manage and organise your time.

Teaching Staff: Dr Barry Lomax (BHL), University of Nottingham

Learning outcomes: On successful completion of this module, students will be able to:

- Develop understanding of the scientific literature via the production of abstracts.
- Develop appropriate referencing style(s) for scientific reporting.
- Identify an appropriate approach for solving a quantitative problem through background and collaborative research.
- Review a given scientific topic in a written report.

Coursework : 2 abstract reports (25%) winter semester and 1 <5000 dissertation (75%) spring semester

Assessment: 100% coursework

Environmental Archaeology V61101

Module Convenors: Dr A Livarda, Alexandra.Livarda@nottingham.ac.uk Dr HJ O'Regan
Hannah.O'Regan@nottingham.ac.uk

School: Humanities, University Park

Module Detail: Level 1, spring module, 10 credits

Pre-requisite(s): None

Summary of Content: This module will concentrate primarily on environmental evidence from or relating to archaeological sites. Techniques such as pollen analysis, the examination of human and animal bones and plant remains contribute to our understanding, and help us interpret the economy and conditions of life in the past.

Aims: The purpose of this module is to introduce students to environmental archaeology and the role it plays in reconstructing climate change and human impact, cultural landscapes and economic activities.

Learning Outcomes:

Knowledge and understanding: A student who completes this programme successfully should be able to demonstrate understanding of the aims, techniques and scope of environmental archaeology. General knowledge and understanding will be assessed by a 1.5-hour exam; in a 1500-word lab book (based on practical sessions), students will be asked to explore the potential and limitations of specific methodological approaches in environmental archaeology (e.g. archaeobotany, archaeozoology, palynology etc.)

Intellectual: This module requires students to formulate and support written arguments pertaining to the methods and theories of environmental archaeology. During lecture 'buzz groups' and practicals, students take part in discussion and debate on diverse issues, partly to reinforce the knowledge they have gained but also to develop their ability to express and defend their views in a scholarly manner.

Practical and professional: A solid grasp of the methods and potential of environmental archaeology is fundamental for anyone practising field archaeology or pursuing an academic career in the subject.

Transferable (Key) skills: Students will develop their written and oral communications skills, while also improving their ability to carry out library research.

Assessment Details:

Exam 1	50%	1 hour 30 minutes - multiple choice digital exam
Coursework 1	50%	2,000 words - practical write-up

Environmental Geoscience C111E5

Module Convenor: Dr E H Bailey liz.bailey@nottingham.ac.uk

Lecturers: Dr Barry Lomax, Dr S D Young, Prof G Shaw

Module Details: Level 1 Autumn semester, 10 credit

Pre-requisite(s): C111E1 Global Environmental Processes

Co-requisite(s): None

Aims: The aim of this module is to provide the student with basic geological skills and the capacity to understand and interpret geological information. It also aims to provide knowledge of geology in the context of Environmental Science.

Learning outcomes: Learning outcomes for this module can be found on: modulecatalogue.nottingham.ac.uk/nottingham

Timetable: The timetable can be viewed on www.nottingham.ac.uk/timetable

This module covers;

- Mineralogy, crystal structure, mineral properties
- The rock forming minerals and their classification
- Igneous rocks, formation, textures and features
- Sedimentary rocks types and their formation
- Metamorphic rocks, structural geology and deformation
- Stratigraphy and geological time
- Geological maps
- Rock weathering, chemical physical and biological
- Geobotany
- Geological resources, coal, oil, minerals, geothermal energy

Teaching Staff: Liz Bailey (EHB), Barry Lomax (BL) Scott Young (SDY), George Shaw (GS)

Coursework: Three Practical Reports (1500 words)

Assessment:

Practical Reports	(20%)	1500 words
Examination	(80%)	1.5 hours

Reassessment for this module is 100% exam

Environmental Science & Society C112E6

Module Convenor: Dr Daniel Smith Daniel.smith@nottingham.ac.uk

Module Details: Level 1, Spring Semester, 10 credits.

The module will be mainly student led, through study of a series of case studies. This student led work will be supported by a small number of lectures and class exercises on key concepts.

Aims: To introduce students to the role and limitations of environmental science within the context practical environmental decision making. At the end of this module students should have a basic understanding of: (1) general scientific methods (2) the limits and assumptions of science and (3) the social context of science based decision making.

Summary of Content: introduce students to the role and limitations of environmental science within the context practical environmental decision making. The three themes of the module are (1) general scientific methods (2) the limits and assumptions of science and (3) the social context of science based decision making. These are illustrated through a series of environmental case studies (e.g. genetic engineering in agriculture, climate change, wild species conservation, fishery management, sea dumping, use of models, radiation protection).

Learning outcomes: Learning outcomes for this module can be found on: modulecatalogue.nottingham.ac.uk/Nottingham

Changes to the Module for this session: Some organisation of lecture material and class exercises in response to student feedback.

Timetable: The timetable will be finalised at the beginning of the semester, hard copies will be made available from the School Office but can also be viewed on www.nottingham.ac.uk/timetable/

Module Programme: One lecture/class exercise per week.

Week 1	Introduction Why is science useful?: <i>discussion</i>
Week 2	Key features of science: <i>lecture</i>
Week 3	Social Context: <i>lecture</i>
Week 4	Ethics: <i>discussion</i> Introduce coursework
Week 5	Case Study: Radioactively contaminated land management: <i>lecture</i>
Week 6	Participatory Decision Making: <i>lecture</i>
Week 7	Illustrative Participatory Exercise 1 <i>class exercise</i>
Week 8	Illustrative Participatory Exercise 2 <i>class exercise</i>
Week 9	Is Science Dangerous?
Week 10	Limits and assumptions of science: <i>lecture</i>
Week 11	Summary and... Exam Preparation and Feedback

Coursework: The coursework component of the module will comprise a 1000 word briefing document.

Assessment: 1.5 hour examination 60%; Coursework (1000 words) 40%

Foundation Science D21BF2

Module Convenor: Dr D Cook (Convenor) david.cook@nottingham.ac.uk

Lecturers: Prof G. Tucker (Chemistry), Dr D Stekel (Maths) and Dr P. Wilson (Statistics)

Module Detail: Level 1, Full Year new module, 10 credit

Pre-requisite(s): Compulsory for all Semester 1 students in Biosciences

Aims: This module is compulsory for all Semester 1 students in Biosciences and aims to equip them with core skills in physics, chemistry, mathematics and statistics which will support learning throughout their degree courses. Emphasis is placed on developing problem solving skills, through examples classes and tutorials and on data handling/ IT skills. The idea is to ensure that certain fundamental areas of science of broad application are understood by all students, irrespective of their prior studies. Students are encouraged to identify their own areas of weakness in this respect and to develop skills commensurately.

Summary of Content: The module has three elements: Chemistry, Maths and Physics. The Chemistry element will include: elements and periodic table; atomic structure and bonding; intermolecular attractions, chemical equilibrium; acids and bases, oxidation and reduction; rates of reaction; basic organic chemistry, isomerism, and rings. The Maths element will include: equations; powers and logs; important functions; differentiation, significance and regression. The Physics element will include:- units and dimensions; power, energy and heat; light and the electromagnetic spectrum; attenuation/absorption; and radioactivity. There is also an IT element, which interfaces with generic IT training for undergraduates provided within the University.

Timetable: Three/four one-hour timetabled sessions per week (Monday mornings from 9 am): twenty-three lectures, regular tutorials/examples classes, forty hours student led studies and revision. The timetable will be finalised at the beginning of the semester, hard copies will be made available from the School Office but can also be viewed at www.nottingham.ac.uk/timetable/

Lecture Programme: Lecture programme is provisional and more detailed information will be given to you in the first session.

- 1 Module introduction (DC)
- 2 Physics 1: Units and Dimensions (DC)
- 3 Maths 1: Introduction to maths (DS)
- 4 Physics 2: Temperature & Heat (DC)
- 5 Chemistry 1: Introduction (GT)
- 6 Maths 2: Calculations (DS)
- 7 Physics 3: Electromagnetic radiation (DC)
- 8 Chemistry 2: Atomic structure and Molarity (GT)
- 9 Maths 3: Algebra (DS)
- 10 Stats: Introduction to statistics (PW)
- 11 Chemistry 3: Chemical bonding (GT)
- 12 Maths 4: Functions and relationships (DS)
- 13 Chemistry 4: Basic Organic Chemistry (GT)
- 14 Chemistry 5: Acids/Bases (GT)
- 15 Maths 5: Powers (DS)
- 16 Chemistry 6: Equilibrium and Kinetics (GT)
- 17 Physics 4: Moving fluids and Diffusion (DC)
- 18 Maths 6: Logarithms (DS)
- 19 Chemistry 7: Rings and isomers (GT)
- 20 Physics 5: Radioactivity (DC)
- 21 Maths 7: Probability (DS)
- 22 Chemistry 8: Oxidation and Reduction (GT)
- 23 Physics 6: Example calculations (DC)
- 24 Maths 8: What else is there? (KG)

Non-Lecture Programme:

There are 6 problem sheets, one for each of the topics, and 6 answer sheets for those problem sheets. There will also be 6 sets of on-line questions, one per topic.

Throughout the course follow-up examples are given for students to try in their own time, in support of lecture material. Tutorials and examples classes are arranged on request with smaller groups of students according to need.

Assessment: A 1.5 hours multiple-choice examination (100% of module mark).

Learning outcomes:

- Knowledge and Understanding - to learn of 1) The underlying principles of Maths, Physics and Chemistry topics necessary for a Bioscience student.
- Intellectual Skills - the ability to 1) Numeracy and the ability to handle mathematical equations 2) Appreciate the multidisciplinary nature of Biosciences.
- Practical/Professional Skills - the ability to 1) Use of EXCEL to analyse and display scientific data.
- Transferable/Key Skills - 1) Numeracy 2) To develop a multidisciplinary approach to problems

Recommended background reading:

For the mathematics syllabus we recommend Keith Gregson's own publication: Gregson, K. (2007). '*Understanding mathematics*', Nottingham University Press, Nottingham, UK.

With respect to Physics and Chemistry we do not recommend specific texts; any good 'A'-level text will suffice in subjects where the student needs additional material to support them.

Global Environmental Processes C111E1

Module Convenor and Lecturers: Dr Liz Bailey-EHB liz.bailey@nottingham.ac.uk

Module Details: A 10 credit Autumn Semester Module

Pre-requisite(s): Normal entry requirements for School of Biosciences

Note: This module is a pre-requisite for C124E8 Hydrochemistry (UP) module in Part 1 Year 2

Learning outcomes:

- Ability to describe the origin and formation of the chemical elements, solar system, solid Earth, atmosphere and oceans.
- An understanding of the structure and circulation of the solid Earth, its oceans and atmosphere.
- Understanding of the chemical cycles of key chemical elements.
- An understanding of the origin of life and how life survives on Earth.

Timetable: The timetable will be finalised at the beginning of the semester, hard copies will be made available from the School Office but can also be viewed on www.nottingham.ac.uk/timetable/

Summary of Content: The unifying theme of this module is biogeochemical cycling - the production, distribution and cycling of materials on the Earth and their availability to, and use by, biological organisms. The introduction covers the history of the universe, from the big bang to the evolution of the Earth's surface environment, via formation of galaxies, stars, elements and the solar system. Then we describe the major global systems and their circulations as they are today - solids (plate tectonics, formation and erosion of crustal rocks), liquids (oceans, temperature and salinity gradients) and gases (atmosphere, weather and climate). In the final section we examine the major materials - including carbon, nitrogen, sulphur, oxygen and metals - and their budgets and cycles; and the interactions between biological and physical/chemical processes on a global scale.

Assessment:

One 1.5 hour computer based examination paper.

Recommended Reading: Earth System Science. M.C. Jacobson, R.J. Charlson, H.Rodhe, and G.H Orians. Academic Press 2000

Grassland Management D212A1

Module Convener: Dr Debbie Sparkes debbie.sparkes@nottingham.ac.uk

Lecturers: Dr Stephen Ramsden, Dr Paul Wilson.

Module Details: Level 1 Spring Semester, 10 credits.

Pre-requisite(s): None

Co-requisite(s): None

Aims: The module will cover the morphology and physiology of forage grass species, identification of grass species, grassland systems in the UK and worldwide and conservation of grass (hay/silage). The module will consider grassland management within mixed farming systems and specific requirements for environmental stewardship schemes. Grassland management will be delivered through e-learning, supported by a farm visit.

Learning outcomes On successful completion of the module, students will be able to:

- Identify the key structures of a grass plant
- Describe the mechanisms of grass growth, production and utilisation and how these are influenced by management practices
- Discuss the latest developments in grassland management and the policy issues associated with them
- Calculate a pasture budget

Week	Subject	Lecturer
1	Introduction to the module and course work	DLS
2	Student centred learning	
3	Student centred learning	
4	Grass physiology practical	DLS
5	Student centred learning	
6	Pasture budget tutorials	SJR
7	Student centred learning	
8	Student centred learning	
9	Student centred learning	
10	Student centred learning	
11	Farm visit	DLS

Coursework: On-line test on grass morphology; written report on farm visit

Assessment:

Exam 1	50%	1 hour exam
Coursework 1	20%	Online test
Coursework 2	30%	Farm visit report. 1500 words.

Recommended Reading

Finch, HJS, Samuel, AM and Lane, GPF (2002) *Lockhart and Wiseman's crop husbandry; including grassland*. (8th edition). Woodhead, Cambridge.

Hopkins, A (2000) *Grass: its production and utilization*. (3rd edition). Blackwell Science, Oxford.

Frame, J and Laidlaw, S (2011) *Improved grassland management*. Crowwood Press.

Managing Tourism and the Environment: Conflict or Consensus? N12122

Module Convener: Dr R Lambert

School: Business School, Jubilee Campus

Module Details: Level 2, Spring Semester, 10 credits.

Pre-requisite: None.

CAPPED MODULE – You will need permission from the module convenor to take this module unless it is compulsory for your course

Expected Number of Students Taking Module: 490

Target Students: Available to Part I and Part II Business School students. Optional module for Manufacturing Engineering and Management (Part I) and interested undergraduate students from across the University apart from Geography with Business students.

Summary of Content: The module will examine and explore:

- The interactions between and the management of tourism and the environment from the perspective of key stakeholders including business, government, non-governmental organisations, tourist and local communities.
- The emergence of environmentally concerned consumers and the implications of different environmental paradigms for tourism development.
- Debates surrounding the environmental and economic impacts of tourism to highlight the potential for both conflict and consensus.
- The role played by pressure groups in influencing tourism development and the emergence of nature/eco-tourism will also be examined.
- The module will draw heavily on case study analysis of specific tourism/environmental interactions to highlight general principles surrounding the environmentally sensitive development of tourism destinations. These case studies will include developed nation destinations (eg UK, USA, Australia, New Zealand) and developing country destinations (eg Amazon, Africa), islands and the Polar Regions.

Learning outcomes:

Knowledge and understanding

This module develops a knowledge and understanding of:

- The dynamics of the global economy and international business &/or an awareness of cultural, legal/regulatory, political, and economic differences across countries &/or an appreciation of management issues from a global perspective.
- The importance of sustainability issues, including an understanding of the challenges and opportunities arising from the activities of people and organisations on the economic, social and environmental conditions of the future.
- The management of resources and operations.
- The development of appropriate business policies and strategies to meet stakeholder needs within a changing environment.
- The interactions and interdependencies between tourism and the environment.
- The development of appropriate policies and strategies to meet stakeholder needs in a changing environment.

Intellectual skills

This module develops:

- The cognitive skills of critical thinking, analysis and synthesis, including the ability to identify assumptions, evaluate statements in terms of evidence, to detect false logic or reasoning, to identify implicit values, and to define terms adequately and to generalise appropriately.
- The ability to create, evaluate and access a range of options, together with the capacity to apply ideas and knowledge to a range of business and other situations.

Professional practical skills

This module develops:

- Self awareness, openness and sensitivity to diversity in terms of people, cultures, business and management issues.
- The ability to conduct research into business and management issues, either individually or as part of a team, including a familiarity with a range of business data and research resources and appropriate methodologies.

Transferable (key) skills

This module develops:

- Effective oral and written communication skills in a range of traditional and electronic media.
- Effective self-management in terms of time, planning and behaviour, motivation, self-starting, individual initiative and enterprise.

AIMS:

- To provide an understanding of the relationship between tourism and the environment.
- To explore future challenges in the management of tourism-environment interactions.

Assessment details:

Exam 1	50%	One 1 hour examination	1 Hour
Coursework 1	50%	One 1,500 word individual essay	

Plant Science C112P1

Module Convener: Dr Kevin Pyke kevin.pyke@nottingham.ac.uk

Module Details: Level 1 Spring Semester 10 credits. Primarily available for students taking a degree in Biology, Applied Biology, Biotechnology Environmental Science or Environmental Biology.

Pre-requisite modules or other requirements: A level in Biology and Chemistry preferred

Module Aims: To provide an introduction to the biology and importance of plants. Lectures will focus on plant form and function, highlighting the ways that genetics and studies on the model plant, *Arabidopsis*, have added to our understanding. Emphasis will also be placed on the ways plants adapt to their surroundings and the potential for use of biotechnology in plant improvement.

Learning outcomes: On successful completion of the module, students will be able to:

1. Describe the process of plant evolution and place the Angiosperms in the context of different types of plants.
2. Discuss the cellular structure of plants, in particular seeds, leaves, flowers and roots and demonstrate an understanding of how these multicellular tissues are constructed.
3. Appreciate the importance of model plants such as *Arabidopsis* in the development of modern plant biology and demonstrate a knowledge of how this plant's attributes have been exploited.
4. Recognise the importance of plant nutrition and the interaction with pathogens are crucial to plant growth and production
5. Develop professional skills in scientific information retrieval and to work safely in a laboratory situation.

Timetable: The timetable will be finalised at the beginning of the semester, hard copies will be made available from the School Office but can also be viewed on www.nottingham.ac.uk/timetable/

Lecture Programme: Lectures will cover a variety of topics on modern plant science including plant morphology, photosynthesis and water movement, flowering and seed development biology, plant pathology, plant genetic transformation and the central role of the model organism *Arabidopsis thaliana* in plant science research. The module also has three practical sessions relating to the lecture material.

Example:

Week	SUBJECT	LECTURER
1	Plant Evolution and Plant Structure	KP
2	Photosynthesis	KP/RF
3	Flowering	ZW
4	Seed Development and Fruit ripening	KP
5	Water relations of plants	KP
6	Plants and Nutrients	MB
7	Plant Pathology	Matt D
8	Arabidopsis and Plant Tissue culture	RS/MD
9	Practical 1	ZW/PC/KP/NG
10	Practical 2	ZW/PC/KP/NG
11	Practical 3	ZW/PC/KP/NG

Staff: KP – Kevin Pyke; RF – Rupert Fray; ZW – Zoe Wilson; MB – Martin Broadley; Matt D – Matt Dickinson; PC – Peter Crittenden; NG – Neil Graham

Assessment:

Exam 1 75% 1 hour 30 mins examination
 Coursework 1 25% Coursework essay - 1000 words

Module Amendments introduced this session: Some changes to teaching personnel.

Recommended reading: Main Text:

Campbell NA, Reece JB and Mitchell LG (2011) Biology 9th International Edition

Secondary texts:

Raven Biology of Plants, Evert RF and Eichorn SE (2012)

All course material including powerpoint lectures will be available on the web.

Lecturers on this course are members of the Plant and Crop Sciences Division, School of Biosciences, Sutton Bonington
 (www.nottingham.ac.uk/biosciences/plantcrop/index.html)

The Anthropology of Human Ecology AA1017

Module Convenor: Dr HA Forbes

School: Humanities, University Park

Module Details: Level 1, Spring Semester, 10 Credits

Target Students Most first year students studying taking degrees in the School of Biosciences including, Nutrition, Biotechnology, Food science, Animal Sciences, Plant Sciences, Applied Biology.

Pre-requisite(s): None.

Summary of Content: The module investigates the social/cultural anthropological (and related disciplines) literature relevant to issues in Human Ecology. Following an introduction to the most basic principles of social/cultural anthropology and biological ecology, the module examines the ways in which traditional societies around the world relate to their environments. The module will concentrate particularly on factors of socio-political organisation such as kinship to illustrate the way in which social/cultural anthropologists study the interrelations of human groups and the very diverse environments world-wide on which they depend. This will be achieved by a series of case studies which may include:

- Traditional techniques of slash and burn cultivation;
- Intensification of agriculture in traditional societies;
- The environmental effects of herding.

Assessment details

Exam 1 100% 2 hours - three questions 2 Hours

Aims: The module introduces students to the anthropological literature relevant to issues in Human Ecology, including the most basic principles of social/cultural anthropology and biological ecology. It concentrates on how traditional societies relate to their environments. The module will concentrate particularly on factors of socio-political organisation, such as kinship, to illustrate the way in which social/cultural anthropologists study the interrelations of human groups and the very diverse environments world-wide on which they depend. This will be achieved by a series of case studies.

Learning Outcomes: A student who completes this programme successfully should have an elementary knowledge of a body of anthropological theory and data related to the ways in which non-western peoples relate to their environments. Students should be able to understand some simple scientific concepts relating to ecology, especially concepts of energy flow and trophic levels, and how they relate to the understanding of food-getting systems world-wide.

The Ecology of Natural and Managed Ecosystems D211E5

Module Convenors: Dr ICW Hardy ian.hardy@nottingham.ac.uk,
Dr H West Helen.west@nottingham.ac.uk.

Module Details: Level 1, Autumn Semester, 20 Credits

Pre-requisite(s): Normal entry requirements for School of Biosciences.

Aims: To introduce the principles of ecology at a first year level

Learning outcomes: Learning outcomes for this module can be found on:
modulecatalogue.nottingham.ac.uk/Nottingham

Changes to the module introduced this session: Update of content of all sessions

Timetable: The timetable will be finalised at the beginning of the semester, hard copies will be made available from the School Office but can also be viewed on
www.nottingham.ac.uk/timetable/

Lecture Programme: (Provisional) teaching week number

- 1 No lectures
- 2 Lectures Introduction to the module, The Nature of Ecology
- 3 Lectures Trophic Levels and Food Webs
- 4 Lab Practical: NB – held at Sutton Bonington!
- 5 Lectures Energy Inputs and Agricultural Systems- Sustainable agriculture
- 6 Lectures Plant Ecology
- 7 Lectures Genetics and Niche Theory
- 8 Lectures Populations and Demography
- 9 Computer Practical: Population Models
- 10 Lectures Behavioural Ecology
- 11 Lectures Ethics and Ecology
- 12 Lectures Habitat Loss Biodiversity and Conservation

Assessment:

Exam 100% 2 hour exam - Rogo

Recommended Reading

Cotgreave P & Forseth I (2002) Introductory Ecology, Blackwell Science (**course book**)
Townsend C R, Harper J L & Begon M (2002) Essentials of Ecology, Blackwell Science
Beeby H (1993) Applying Ecology, Chapman Hall
Krebs C (1987) Ecology, Harper & Row
Krebs JR & Davies NB An introduction to Behavioural Ecology, 3rd Edⁿ. , Blackwell Science
Krebs JR & Davies NB (1997) Behavioural Ecology, 4th Edⁿ. , Blackwell Science
Stiling G (1996) Ecology: Theories & Application, Prentice Hall
Plus appropriate Journals
Additional Key literature will be suggested during the lecture course.

32 Appendices

- 1 Making the Most of Practical Work
- 2 Qualitative Assessment Criteria - General Guidelines for Examinations
- 3 Qualitative Assessment Criteria - General Guidelines for Essays & Reports
- 4 Qualitative Assessment Criteria - General Guidelines for Posters
- 5 Qualitative Assessment Criteria - General Guidelines for Oral Presentations
- 6 Marking at Different Levels within Degree Programmes
- 7 Policy for Consistency in Negative Marking on MCQs Across the School



Making the Most of Practical Work

Practical and fieldwork are important parts of many bioscience courses, giving you the opportunity to put into practice all the theory you've been learning, experience the excitement of science and obtain an insight into what it's like being a researcher. This guide is full of hints and tips from bioscience students on how you can make the most of practical work.

Top tips

- Enjoy practical work – it's a fantastic opportunity to put into practice all the theory you have learned;
- Read the practical or fieldwork schedule before you go...
- ... And research anything you aren't sure about
- Try to link your practical work or fieldwork activities to what you're hearing about and discussing in lectures and tutorials;
- Don't panic – you won't be the only one who doesn't understand what you're doing at the start;
- Make notes about what you did and the results you got...
- ... And keep these notes safe!
- Learn the essential techniques (such as pipetting) and how to do them well;
- Don't be afraid to ask for help, that's what the demonstrators and lecturers are there for;
- Pay attention to and follow any safety instructions;
- Don't rush, you might miss things out...
- ... Likewise don't spend all your time chatting to your lab partner so that you have to cram everything in to the last hour;
- Give yourself plenty of time to write up your lab book or report; and
- Turn up, it sounds obvious but if you don't go, you don't benefit.



Why is practical work important?

Practicals and fieldwork can give you a taste of what it's like to be a scientist and researcher and hands on experience of the theory you've been learning in lectures and through your reading. They give you the opportunity to develop data analysis, communication group work and other skills you won't get from lectures. The practicals at university or college will often be very different from those you experienced at school: they may be longer, open ended (there might not be a "right" answer), involve more complex equipment and require more accurate measuring and recording.

"I quickly learnt that practical work is there to allow you to take what you learnt from a lecture or a book, and apply it. This 'hands-on' approach made quite a daunting subject a lot easier and more fun to learn." Katherine Staines, University of Edinburgh

Practicals and fieldwork can help you to build confidence in your bioscience knowledge and skills and you get the chance to meet people in your degree group and make new friends.

Before the practical

Read your practical schedule. If there are things you don't understand (the theory behind an experiment, what a piece of equipment is or does) ask around, research it, look back through your lecture notes. Think about how the experiments relate more widely to what you are learning about. This gives you time, in the practical, to think about the scientific side of the experiment, not just worry about the next step.

"What would I change if I could? Read the practical procedure before going into the lab. Although we had the practical procedures before going in the lab, at first I didn't read them so I couldn't understand what I was doing" Andria Pelava, University of Leicester

Make sure you understand what you are doing and why you are doing it. If you have to plan any aspect of the practical in advance make sure you have done so. Don't just turn up and expect to be able to breeze through because you've done something similar before.

"Blindly following a set of steps in a protocol means that when things go wrong you're powerless – if you don't know what the components do and why, you won't know what to change." Jelena Aleksic, University of Cambridge.

In the practical

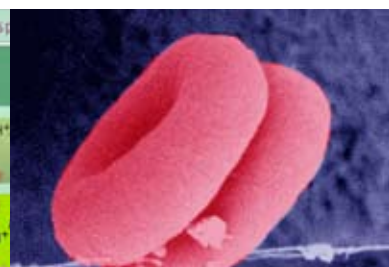
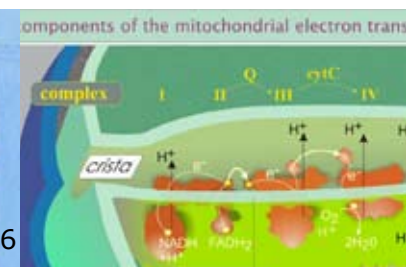
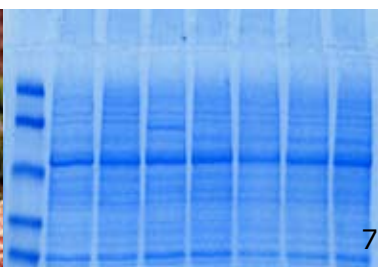
Make use of the demonstrators and teaching staff. Don't be afraid to ask questions, demonstrators are there to offer advice and help but aren't psychic. These could be questions about anything to do with the practical, from how to use a piece of equipment, how to do a calculation, or getting someone to check over your experiment if it's not working as expected. If you were unsure about something in a lecture relating to the practical it may also be an opportunity to talk to teaching staff. Make sure you understand everything before you leave.

"The practical classes are staffed with demonstrators. Their job is to help you understand and learn. Use the opportunity to talk through the material and check your results and answers with them" Kasia Kajala, University of Cambridge

Take notes!

- Keep notes of what you did (for example the steps you undertook and any problems with the method)...
- ...And the results you got (not the results you thought you should get);
- Don't write on a scrap of paper you're going to lose or the on sleeve of your lab coat;
- Use the practical schedule / handout or go and buy yourself a notebook in which you can keep everything together;
- If you don't write it down you'll be amazed how much you forget; and
- On a field trip you might need plastic folders and bags to keep your notes dry!

"If you do not take notes during a practical, trust me, you will regret it when it comes to revising. Write down anything you may need either writing up the experiment or later to remind you what you did" Catherine Jeanes, Royal Veterinary College



Doing the experiments

- Learn to use equipment properly, from accurate measuring to accurate reading of results. This helps to reduce error and minimise mistakes.
- Are you prepared? So, for example, are all your reagents ready? Do you have all the automatic pipettes/ Eppendorfs / petri dishes you are going to need prepared and ready? Do you have all the equipment you will need?
- Don't waste time. If you're waiting for results or there's a long wait to use a piece of equipment start thinking about your write-up, tidy up your workspace, look ahead in the schedule and see if there's anything that could be prepared for a later stage of the practical.
- Be inquisitive, think about the experiment as you're doing it, don't just follow the steps.

"Ask yourself questions as you progress with the work. For example, what do I expect the results to show? Are my results supporting my hypothesis? Are there any outliers, and if so, what factors may have contributed to these?" Ricky Trigg, University of Leicester

Focus

Focus on what you're doing. Practical sessions and fieldwork are less structured than lectures and tutorials, but that doesn't mean they are opportunities to sit and chat. You could lose track of where you're at or forget to add a vital reagent. Concentrate on what you're doing, doubly important when the chemicals you're using can be very dangerous.

If you're working as part of a pair or group don't just sit back and let everyone else do the work. Likewise if one member of your group seems determined to do everything themselves, try to divide up the tasks and activities. The benefit of practicals and fieldwork is that you get hands-on experience of the science, you can't have that as a spectator.

Health and safety

Wear a lab coat and make sure it's fastened. Use gloves and goggles as needed and make sure you wash your hands before leaving the lab. On field trips make sure you're properly dressed – that might mean waterproofs, warm clothing and

boots, or sunscreen and a hat.

Don't mess about, labs can be dangerous places, so no eating, drinking, putting on make-up, chewing your nails etc. Pay attention to any health and safety warnings given at the start of a practical. If you spill or damage something, and aren't sure how to deal with it safely, ask for help.

"Lab work can be very dangerous and if you mess around, not only will you not benefit from the class, but you potentially put yourself and others at risk.... Don't worry if you have an accident, it happens to everyone, just tell one of the demonstrators." James Newton, University of Leicester

At the end of a practical session tidy up after yourself, and on a field course don't leave rubbish scattered over the study site.

Above all

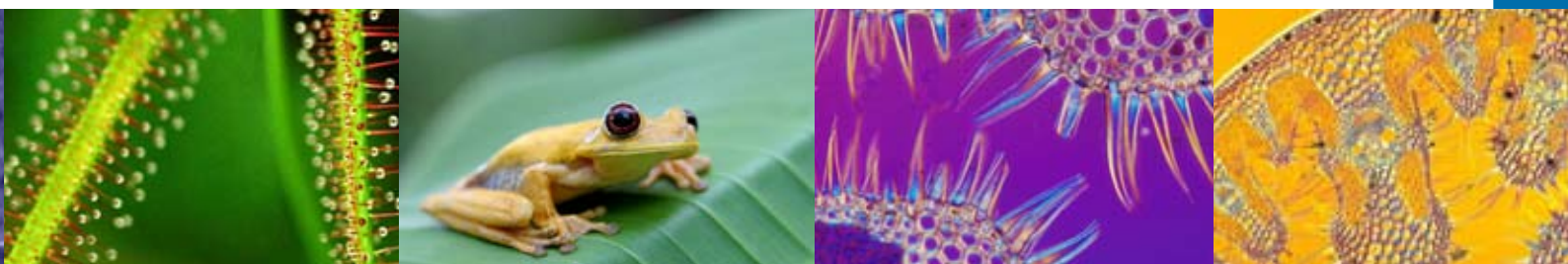
Don't give up. If something doesn't work, try it again if you have time. Go through the procedure and check you have completed every step and check it over with a demonstrator. Science doesn't work perfectly every time and everybody, from the most experienced researcher to the most inexperienced student makes mistakes, and learns from them! If it does go completely and utterly wrong see if you can have a look at your neighbours results, or if there is a demonstration, can you get results from that?

After the practical

After the session you might want to follow-up on some areas or re-read what you researched beforehand. If further recommended reading is provided during practical or field course try to do it as soon as possible afterwards.

"Follow up things in your own time. A three-hour practical class is a short time to teach a subject in. If you are interested use your own time to find out about things from the practical. A bit of initiative will do wonders for your grades and you can pursue the things you enjoy in the class." Rudi Verspoor, University of Edinburgh

Make sure you give yourself enough time to write up your report or complete your lab book. It might take longer than you think



Resources



All the advice and tips in this short guide came from entries to the UK Centre for Bioscience Student Award 2010, which asked students “**How would you advise new bioscience students to make the most out of practical work?**” The winning, runner-up and shortlisted entries are all available to view and download from our website at www.bioscience.heacademy.ac.uk/funding/essay/award10.aspx

Practical techniques

Virtual Analytical Lab has demonstrations of a number of lab techniques, including using a pipette and making standard curves. <http://hlsweb.dmu.ac.uk/ahs/elearning/RITA/index.html>

Practical Biology has descriptions of standard techniques such as setting up serial dilutions. www.practicalbiology.org

The **Virtual Genetics Education Centre** (VGEC) has tutorials and some practical demonstrations of key techniques. Also lots of background information on genes and disease, ethics and the Human Genome project. www.le.ac.uk/ge/genie/vgect/index.html

Doing research

Engage aims to support you with the key aspects of planning and carrying out a research project, from literature reviews to step-by-step statistics and scientific writing. www.engageinresearch.ac.uk/

Statistics and data analysis

The **SUMS project** has information on a variety of topics from accuracy and precision to plotting and interpreting graphs and charts. www.step-up-to-science.com/sumsv3/

Statistics Hell, information sheets, podcasts and worked examples on a wide range of statistical tests. Be aware the theme and examples used on the site won't be to everyone's taste... www.statisticshell.com/

Fieldwork

Although aimed at A-level Geography students **Fieldwork Techniques**, from Geography Teaching Today, gives a good summary of many basic fieldwork techniques. www.geographyteachingtoday.org.uk/fieldwork/resource/fieldwork-techniques/

Distant Access to an Ecological Field Experiment gives you an example of how to design a field experiment and what type of data need to be collected. www.bioscience.heacademy.ac.uk/hosted/tiragan/

Presenting your work

Posters: Hints and tips on designing research posters from Newcastle University, <http://orien.ncl.ac.uk/ming/dept/tips/present/posters.htm>, and the University of Leicester, www2.le.ac.uk/offices/ssds/sd/ld/resources/presentation/designing-poster

Giving presentations: Guidance on giving an effective presentation from the University of Leicester, from avoiding death by PowerPoint to effectively answering questions. www2.le.ac.uk/offices/ssds/sd/ld/resources/presentation

Written reports: Writing for science, from the University of Leicester, www2.le.ac.uk/offices/ssds/sd/ld/resources/writing/science, and Writing skills from Skills@Library at the University of Leeds have tips and guidance on writing in general and scientific writing http://skills.library.leeds.ac.uk/topic_writing_skills.php

Need to illustrate your practical reports? Visit **ImageBank** for thousands of copyright cleared bioscience images accompanied by descriptions. www.bioscience.heacademy.com/imagebank

All the images used in this guide are available in ImageBank.



Appendix 2

CLASS	%	QUALITATIVE ASSESSMENT CRITERIA - GENERAL GUIDELINES FOR EXAMINATIONS
First A1 A2 A3 A4	100 90 80 73	a. Deep understanding of subject; carefully balanced arguments clearly presented; all material highly relevant to the question. b. Considerable and effective use of literature information, beyond that supplied as taught material. c. Clear evidence of critical thinking, originality and novelty d. Excellent structure and good use of illustrative diagrams etc.; evidence of originality/novelty in presentation.
Upper Second B1 B2 B3	68 65 62	a. Sound grasp of subject material; presentation of logical arguments relevant to the question. b. Reasonable evidence of wider study beyond lecture material. c. Some evidence of independent thinking and originality. d. Well organised answer; appropriate use of illustrative diagrams; clear presentation.
Lower Second C1 C2 C3	58 55 52	a. Reasonable understanding of subject material, but some flaws in the logic of arguments and factual errors; possibly some irrelevant material. b. Only limited evidence of wider study and use of literature information. c. Little evidence of independent thinking or originality. d. Fairly clear presentation; generally conforming with accepted format but with some flaws in style; little use of illustrative diagrams.
Third D1 D2 D3	48 45 42	a. Limited understanding of subject; numerous flaws in the logic of arguments; considerable factual errors and/or irrelevant material. b. Virtually no inclusion of literature information beyond lecture material. c. Virtually no evidence of independent thinking or originality. d. Little attention given to structure; very limited use of illustrative diagrams; serious flaws in presentation.
Soft Fail E	35	a. Minimal understanding of subject; serious factual errors; general lack of any logical arguments; considerable amount of irrelevant material. b. Virtually no inclusion of literature information. c. No evidence of independent thinking or originality. d. Very poorly structured answer; disorganised and untidy; missing sections; virtually no use of illustrative diagrams.
Fail F1	25	Insubstantial answer; very poor coverage of material with little information that is relevant. Virtually no evidence of understanding the question and minimal attempt at structure
Fail F2	10	A few lines of relevant material
Fail F3	0	No relevant material

- Only broad classes (A,B,C,D and E) have qualitative criteria attached; the division into (e.g.) C1, C2, C3 etc. is at the discretion of the examiner.
- The qualitative criteria include consideration of :
 - Student's knowledge of subject; depth, relevance and quality of answer.
 - Evidence of reading / study beyond regurgitation of standard taught material.
 - Independent or critical thinking / originality etc.
 - The quality of presentation - structure of answer, the use of sections; diagrams etc., general neatness etc.

Appendix 3

CLASS	%	QUALITATIVE ASSESSMENT CRITERIA - GENERAL GUIDELINES FOR ESSAYS & REPORTS
First A1 A2 A3 A4	100 90 80 73	a. Excellent report structure with professional presentation of figures, tables, diagrams, references etc.; evidence of originality/novelty in presentation. b. Deep understanding of subject; all arguments carefully developed and clearly expounded. c. Considerable and effective use of literature information, beyond that supplied as taught material. d. Clear evidence of critical thinking, originality and novelty.
Upper Second B1 B2 B3	68 65 62	a. Well organised report; appropriate choice of illustrative figures, tables, diagrams etc.; clearly presented throughout. b. Sound grasp of subject material; generally logical arguments. c. Reasonable evidence of wider study beyond lecture material. d. Some evidence of independent thinking and originality.
Lower Second C1 C2 C3	58 55 52	a. Generally clear report conforming with accepted format but with some errors in style and/or omissions in presentation of illustrative figures. b. Reasonable understanding of subject material, but some flaws in the logic of arguments and factual errors. c. Only limited evidence of wider study and use of literature information. d. Very little evidence of independent thinking or originality.
Third D1 D2 D3	48 45 42	a. Little attention given to report structure; limited use of illustrative figures, tables etc.; serious flaws in presentation. b. Limited understanding of subject; considerable factual errors demonstrated. c. Virtually no inclusion of literature information beyond lecture material. d. Virtually no evidence of independent thinking or originality.
Soft Fail E	35	a. Very poorly structured; disorganised; missing sections; minimal presentation of supporting data, figures etc. b. Minimal understanding of subject; serious factual errors; general lack of any logical arguments. c. Virtually no inclusion of literature information. d. No evidence of independent thinking or originality.
Fail F1	25	Very poor coverage of material with little information that is relevant. Virtually no evidence of understanding the question; minimal attempt to provide a structured answer.
Fail F2	10	A few lines of relevant material
Fail F3	0	No relevant material

- Only broad classes (A,B,C,D and E) have qualitative criteria attached; the division into (e.g.) C1, C2, C3 etc. is at the discretion of the examiner.
- The qualitative criteria include consideration of :
 - The quality of the report/essay etc. - the use of sections; diagrams; figures etc.; citation of references; general neatness etc.
 - Student's knowledge of subject; depth and quality of answer.
 - Evidence of reading / study beyond regurgitation of standard taught material.
 - Independent or critical thinking / originality etc.

Appendix 4

CLASS	%	QUALITATIVE ASSESSMENT CRITERIA - GENERAL GUIDELINES FOR POSTERS
First A1 A2 A3 A4	100 90 80 73	a. Excellent use of headings, text appropriate size, figures and diagrams clear and well-labelled, very easy to follow progression of poster theme. b. Visually very attractive and creative. c. Factually very accurate and informative with clear evidence of extensive knowledge of published literature. d. All relevant aspects of own data presented, where inclusion is appropriate.
Upper Second B1 B2 B3	68 65 62	a. Good use of headings, text of appropriate size, some loss of figure clarity or slight errors in labelling, easy to follow progression of poster theme. b. Visually quite attractive and creative. c. Factually accurate and informative with some evidence of knowledge of published literature. d. Most relevant aspects of own data presented, where inclusion is appropriate
Lower Second C1 C2 C3	58 55 52	a. Adequate use of headings, text a little too small, figures not clear and inadequately labelled, more difficult to follow progression of poster theme. b. Visually unstimulating. c. Some factual inaccuracies with only limited evidence of knowledge of published literature. d. Several aspects of own data omitted, where inclusion is appropriate.
Third D1 D2 D3	48 45 42	a. Very poor use of headings, text too small or hand-written, figures unclear and unlabelled, no obvious progression of poster theme. b. Visually unattractive and dull. c. Many factual inaccuracies with very limited evidence of knowledge of published literature. d. Most of own data omitted, where inclusion is appropriate.
Soft Fail E	35	a. No headings used and poster somewhat disorganised. b. Visually unattractive and dull. c. Inaccurate with virtually no evidence of knowledge of published literature. d. None of own data included.
Fail F1	25	a. No headings used and poster very disorganised and difficult to understand. b. Visually very unattractive and dull. c. Inaccurate with no evidence of knowledge of published literature. d. None of own data included.
Fail F2	10	A few lines of relevant material presented
Fail F3	0	No poster presented

1. Only broad classes (A,B,C,D and E) have qualitative criteria attached; the division into (e.g.) C1, C2, C3 etc. is at the discretion of the examiner.
2. The qualitative criteria include consideration of :
 - a. Structure and organisation of the poster.
 - b. Visual impact and attractiveness.
 - c. Accuracy and completeness of the content.
 - d. Where appropriate, inclusion of students' own experimental data.

Appendix 5

CLASS	%	QUALITATIVE ASSESSMENT CRITERIA - GENERAL GUIDELINES FOR ORAL PRESENTATIONS
First A1 A2 A3 A4	100 90 80 73	a. Clearly audible, well-paced presentation delivered without obviously reading from notes in the time allocated. Addressed to the audience. b. Very well-planned with a clear logical structure focused on the topic being presented. Excellent introduction and summary. c. Excellent use of visual aids which are easy to read and understand. Main points of slides clearly explained. d. Content of presentation very well-researched with relevant data where appropriate. Response to questions asked indicates thorough understanding.
Upper Second B1 B2 B3	68 65 62	a. Clearly audible, well-paced presentation delivered with some reading from notes in the time allocated. Mainly addressed to the audience. b. Quite well-planned with logical structure focused on topic being presented. Good introduction and summary. c. Good use of visual aids which are quite clear to read and understand. Good attempt to explain main points of slides. d. Content of presentation quite well-researched with relevant data where appropriate. Response to questions asked indicates good understanding.
Lower Second C1 C2 C3	58 55 52	a. Audible presentation which may be too fast or too slow. Tendency to read from notes and to address floor or ceiling. May be outside time allocated b. Some flaws in structure and not always focused on the topic being presented. Weak introduction and summary. c. Adequate use of visual aids which are not always easy to read and understand. Little attempt to explain main points of slides. d. Some omissions in literature research and little relevant data presented. Response to questions asked indicates incomplete understanding.
Third D1 D2 D3	48 45 42	a. Difficult to hear. Too fast or too slow. Read from notes and little attempt to address the audience. Outside allocated time. b. Poorly-structured, rambling presentation which strays from topic being presented. Very weak introduction or summary. c. Poor visual aids which are difficult to read and understand. Poor explanation of main points of slides. d. Little evidence of literature research and no data presented. Response to questions indicates poor understanding.
Soft Fail E	35	a. Mumbled, halting presentation. Much too fast or too slow. No attempt to address audience and well outside allocated time. b. No discernible structure to presentation with some relevant material. No introduction or summary. c. Very poor visual aids. No explanation of main points of slides. d. Poor literature research and no data presented. Response to questions shows serious weakness in understanding.
Fail F1	25	a. Extremely difficult to hear presentation and well outside allocated time. b. No discernible structure and very little relevant material. No introduction or summary. c. No visual aids used. d. Little evidence of research. Response to questions shows minimal understanding.
Fail F2	10	Very minimal attempt to give a presentation.
Fail F3	0	Failed to give a presentation.

- Only broad classes (A,B,C,D and E) have qualitative criteria attached; the division into (e.g.) C1, C2, C3 etc. is at the discretion of the examiner.
- The qualitative criteria include consideration of :
 - Presentation of talk; audibility, speed, use of notes, addressed to audience, time keeping.
 - Organisation of talk; logical coherent progression with introduction and summary.
 - Use of visual aids; clarity and explanation of salient points.
 - Research and response to questioning; evidence of extensive reading, presentation of own data (where relevant), evidence of wider understanding.

Appendix 6

School of Biosciences Qualitative Marking Schemes Supplementary Guidelines

Marking at Different Levels Within Degree Programmes

The School's qualitative marking schemes provide general guidance for assessment of various types of work. However, in applying these schemes to individual assessments, account must be taken of the level at which students are working. The criteria outlined below provide general guidance, and not all criteria will be applicable to all forms of assessment.

Academic Levels

- Level 1** Certificate level, generally qualifying year students
- Level 2** Diploma level, generally taken by year 2 students
- Level 3** Degree level, generally taken by year 3 students
- Level 4** Masters levels, generally taken by post-graduate or year 4 undergraduate students

Major considerations

Mark Class A

- Level 1:** Draws on available evidence to make sound conclusions supported from a range of sources.
- Level 2:** There is evidence of further reading and careful analysis offering alternative views.
- Level 3:** There is critical analysis offering alternative views. There is clear expression of own views, which are supported by appropriate literature. Draws on available evidence to make persuasive conclusions.
- Level 4:** Detailed, orderly and critical work with clearly specified focus/foci exhibiting rigorous analysis, synthesis and evaluation. There must be evidence that the student has developed their own arguments.

Mark Class B

- Level 1:** Content is accurate and relevant with appropriate use of supporting material.
- Level 2:** There is sound analysis with good expression and argument with evidence of independent thinking supported by appropriate material.
- Level 3:** There is sound critical analysis. Alternative views are expressed using supporting evidence from a variety of sources.
- Level 4:** Evidence of originality and significant critical analysis. There is evidence of integration of material from a variety of sources.

Mark Class C

- Level 1:** Content is largely accurate and relevant with some evidence of understanding.
- Level 2:** There is adequate analysis with limited evidence of wider study.
- Level 3:** There is reasonable understanding, with some attempt at analysis and limited use of supporting material.
- Level 4:** There is reasonable understanding and analysis supported by a range of relevant evidence.

Mark Class D

- Level 1:** Some relevant content but with evidence of only very limited understanding.
- Level 2:** Some relevant content with limited understanding but little evidence of wider study.
- Level 3:** Basic understanding with limited evidence of wider study.
- Level 4:** Basic understanding with limited evidence of understanding and some attempt at analysis.

Mark Classes E/F

- All levels:** Work does not demonstrate above criteria and reference should be made the qualitative criteria in deciding final mark.

Modules offered at levels A-C are considered intermediate between Levels 1-2, 2-3 and 3-4 respectively.

Appendix 7

The University of Nottingham - School of Biosciences

Policy for Consistency in Negative Marking on MCQs across the School of Biosciences

Rationale

A number of modules are assessed by multiple choice questions (MCQs). Consistency in negative marking on MCQs is required across the School to ensure equity of treatment for all students undertaking MCQ examinations.

Proposals

- Adopt a consistent negative marking scheme across the School.
- That any negative marking schemes should result in a student achieving a mark of zero for guessing at all questions.

Policy 1

The following is adopted for MCQ papers where there are a number of possible correct options (e.g. A, B, C, D) and the options exclude a "don't know" answer.

$$\text{Marks for incorrect answer} = -\left[\frac{1}{(n-1)}\right]$$

where n is the number of possible options (A, B, C etc) and there is only one correct answer per question

Example of Policy 1

$n=4$, thus negative marks on incorrect answers = $-1/3$

Question No.	A	B	C	D
1	1	$-(1/3)$	$-(1/3)$	$-(1/3)$
2	$-(1/3)$	1	$-(1/3)$	$-(1/3)$
3	$-(1/3)$	1	$-(1/3)$	$-(1/3)$
4	$-(1/3)$	$-(1/3)$	1	$-(1/3)$
5	$-(1/3)$	$-(1/3)$	1	$-(1/3)$
6	$-(1/3)$	$-(1/3)$	$-(1/3)$	1
7	1	$-(1/3)$	$-(1/3)$	$-(1/3)$
8	$-(1/3)$	$-(1/3)$	$-(1/3)$	1
9	$-(1/3)$	$-(1/3)$	1	$-(1/3)$
10	$-(1/3)$	$-(1/3)$	$-(1/3)$	1
11	1	$-(1/3)$	$-(1/3)$	$-(1/3)$
12	$-(1/3)$	1	$-(1/3)$	$-(1/3)$
Sum	0	0	0	0

Thus guessing all As etc provides a zero sum game: *Note that the above table is an example only and in real examinations the spread of correct answers may not be split evenly across the possible options.*

Policy 2

The following is adopted for MCQ papers where there are the following three options (True, False and Don't Know).

- Where the correct answer is selected a mark of +1 will be achieved.
- Where the incorrect answer is selected a mark of -1 will be achieved.
- Where the "don't know" option is selected a mark of 0 will be achieved and will have the same effect as the student electing to not answer the question.

Therefore marks for incorrect answer = -1

Example of Policy 2

Question No.	True	False	Don't Know
1	1	-1	0
2	-1	1	0
3	-1	1	0
4	1	-1	0
5	1	-1	0
6	-1	1	0
Sum	0	0	0

Thus guessing all "True" etc provides a zero sum game. *Note that the above table is an example only and in real examinations the spread of correct answers may not be split evenly across the possible options.*

Revised 2/4/2004

A strategy for answering Multiple Choice Questionnaires

The School of Biosciences uses MCQs alongside other forms of assessment. They are useful for finding out how much you know. They also help you to find out how well you are doing. This guidance sheet will help you to get the best results in MCQ tests and examinations.

Why MCQs?

We use MCQs for summative assessment (to measure performance and give you a mark), and for formative assessment (to encourage you to keep up with your studies and identify strengths and weaknesses). MCQs are often used for mid-course tests and end of course exams. Unlike written exams, they can assess the breadth of module content.

MCQs require factual answers and don't allow you to express ideas freely. Questions are designed to be unambiguous with a single correct response. They are marked electronically and marks are awarded *objectively*. In contrast, essay-type exam questions are marked *subjectively* according to the question setter's expectation and the marker's interpretation.

MCQs usually test your knowledge rather than your understanding (although they can do this too). Sometimes they test your ability to work things out. You may find that the answers prompt you to reveal what you know, even if you can't remember everything. Some students find MCQs straightforward while others find them problematical. Of course, the same is true for other forms of assessment which is why we use a combination of approaches.

Why negative marking?

Policy in the School of Biosciences is that MCQs are negatively marked. This means that incorrect answers attract a minus score. We use negative marking for two main reasons. Firstly, if we didn't, it would be possible to get a proportion of marks by random guessing. Secondly, we want you to try to give answers with confidence and to develop clarity and focus in the way you approach your studies.

The amount deducted for a wrong answer is calculated using the following formula:

$$\text{Deduction} = 1/(n-1), \text{ where } n \text{ is the number of possible answers}$$

Not answering, or choosing "Don't know", always scores 0. An answer paper with a total score of <0 is given a mark of zero.

Many people find negative marking discouraging, especially if they are not sure whether to guess or not. To get the best marks it helps to understand the structure of an MCQ test and to know how to maximise your chance of finding the right answers.

MCQ structure and types of question

MCQ tests come in two main flavours:

- a) True/False/Don't know (called TFD)
- b) Answer 1 from 5 (called AtoE) [Other ratios, such as 1 from 4, are occasionally used]

In either case, the questions may be independent of one another or grouped. Grouped questions sometimes relate to a preceding statement and so are really arranged in subsets.

A question in a TFD test provides a substantive statement (positive or negative) and asks you to judge its truthfulness.

Questions in an AtoE test take a wider variety of forms. Common types are

- 1) Interrogative: a question starting with *What, Why, Where* etc and offering five possible answers;
- 2) Substantive: an incomplete positive or negative statement with five possible endings;
- 3) Imperative: an instruction to follow (starting with *State, Calculate, List* etc) and offering five possible results or outcomes.

Sometimes, questions are more complex: the question itself is preceded by a numbered list of items or statements and you are asked to select the correct combination. The possibilities will often include "All of the above" or "None of the above". These types of questions require particular care and a clear, logical approach.

Although MCQ questions are carefully designed, few statements in biosciences are completely true or false or free of possible exceptions. Equally, question setters are human and fallible. You are expected to interpret each question in the most obvious/straightforward sense and answer accordingly. The context for the question will have been set by the module and your answers should reflect its level and content. Questions are not designed to mislead you. Neither should you try to outwit the setter with your answers. Written comments on answer papers are ignored and may even cause your paper to be rejected during marking.

What's the best approach?

You can maximise your score in an MCQ test if you take the right approach. Negative marking discourages reckless guesswork but you can turn it to advantage with a wise strategy. The effect of negative marking is different for TFD and AtoE, so they need different strategies. Use the following seven steps to maximise your test score:

Before the test	
<ol style="list-style-type: none"> Find out if the test is TFD or AtoE, how many questions there will be and how long it lasts. Look out for a sample test, if there is one, and use it for practice. 	
TFD Correct = +1; Incorrect = -1 Don't know/abstain = 0	AtoE Correct = +1; Incorrect = -0.25 Abstain = 0
<ol style="list-style-type: none"> Go right through the paper, answering all the questions you are confident about. Think carefully about the logic of each one. Take particular note of grouped questions. Go back to the start and try questions you can answer with a little extra thought. Consider each remaining question in turn. If you have <i>some idea</i> about whether the statement is true or false but are not sure, it may be worth a calculated guess, especially if you have answered most other questions with confidence. If you still have no idea about a question, choose "Don't know" or abstain. If there is time, reconsider the questions you were not sure about. 	<ol style="list-style-type: none"> Go right through the paper, answering all the questions you are confident about. Think carefully about the logic of each one. Take particular note of grouped questions. Go back to the start and try questions you can answer with a little more thought. Look carefully at each remaining question. In each case, identify any answers which you know to be wrong. If you can exclude some possibilities it may be worth making a calculated guess, especially if you have answered most other questions with confidence.* If you cannot exclude any possibilities, don't answer.* If there is time, reconsider the questions you were not sure about.

*Note: In AtoE tests, questions have five possible answers. Negative marking means that completely random guesses will, on average, give a zero overall score. *However*, if you can exclude some obviously wrong answers, the risk of losing marks by guessing is substantially reduced. *For example*, if you exclude two of the five answers, you are choosing from three rather than five possibilities. The penalty for getting it wrong is still 0.25 so, on average, a guess may now give a better result than not answering. There is no simple rule about this, but the risk to your overall score by guessing is reduced the more wrong answers you identify and remove.

Things to remember

- Question setters often include answers which are *obviously* wrong. Spotting and eliminating these can significantly boost your chance of finding the correct answer.
- Avoid choosing an answer just because you recognise a phrase; it could be the answer to another question or to a question phrased differently.
- Setting MCQ questions is very difficult and staff often create banks of reusable questions which they know work well. For this reason, correct answers may not be published and past tests may not be available.
- MCQ tests are marked objectively on a linear percentage scale. This means that your score cannot be interpreted with the degree grading system used for subjectively marked tests and assignments (the assessment grids in course handbooks).

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