

Introduction

What is in this Study Guide?

Biological Sciences stream students will not receive printed module handbooks. This study guide contains information on the content and assessment of these modules. This information is also available within each module on My Dundee. This guide also contains timetables for each of these modules but please note that sometimes times or venues have to be changed at short notice so always check My Dundee for latest information.

We hope that this Life Sciences Study Guide will:

- Summarise important essential information, guidance and advice on issues of teaching, learning and student support
- Help you achieve your maximum potential taking modules and/or degrees offered by the College of Life Sciences

Key Dates in Academic Year 2013-2014

Semester 1

Freshers' Week:	2-6 September 2013
Teaching Weeks 1-5 & 7-12	9 September – 11 October 2013 21 October – 29 November 2013
Unscheduled Teaching Week	14 – 18 October 2013
Semester 1 Exam Weeks 13 & 14	2 – 12 December 2013 inclusive
4 weeks Christmas Vacation:	16 December 2013 – 10 January 2014

Semester 2

Teaching Weeks 15-25	13 January – 28 March 2014
3 weeks Easter Vacation:	31 March – 18 April 2014
Semester 2 Exam Weeks 26-30	21 April – 23 May 2014 inclusive
Graduation ceremonies:	17 – 20 June 2014
Single resit diet for Semesters 1&2	4 – 15 August 2014 inclusive

Contents

Section 1 – The management of undergraduate teaching

1.1. Key contacts	Page 3
1.2. Our responsibilities in the provision of teaching	Page 3
1.3. Seeking help, advice and information from SLSL&T	Page 3
1.4. About My Dundee	Page 4
1.5. Help with academic matters	Page 5
1.6. Help with regulatory matters from the School Secretary	Page 5

Section 2 – Outlines what is expected of you as a student – learning, attendance and

2.1. Communication	Page 6
2.2. Student attendance and participation	Page 6
2.2.1. Attendance at compulsory classes and coursework submissions	Page 6
2.2.2. Submitting your course work	Page 6
2.2.3. What to do when absent from classes or examinations	Page 7
2.2.4. Absence from exams (in-course tests and well as degree exams)	Page 7
2.2.5. Life Sciences Scrutiny Committee Procedure	Page 7
2.2.6. Consequences of absence and/or failure to submit coursework	Page 8

Section 3 – Degrees in Life Sciences and Modular Structure

3.1. Level 3 Biological Sciences	Page 9
3.1.1. Life Sciences Level 3 general information	Page 9
3.1.2. Types of assessment	Page 10
3.1.3. Feedback	Page 10
3.1.4. Core textbooks	Page 10
3.1.5. Life Science modules at Level 3	Page 11-12
3.1.6. Level 3 Module Descriptions	Page 13-27

Section 4 – Important regulatory information

4.1. The SQF Credit Scheme and the student workload	Page 28
4.2. Advisors of Studies – choosing your programme of study	Page 28
4.2.1. Changing modules and/or your programme of study	Page 28
4.3. Studying abroad and eligibility criteria	Page 28
4.3.1. Eligibility criteria	Page 29
4.4. Prizes and Life Sciences award ceremony	Page 29
4.5. Assessment and examinations	Page 29
4.5.1. MC (medical certificate) and/or CA (certified absence) grades	Page 29
4.5.2. Grade conversion tables used in summative assessments	Page 30
4.5.3. Use of English translation dictionaries in examinations	Page 31
4.5.4. What can happen if you fail to pass a module?	Page 31
4.6. Plagiarism and academic dishonesty	Page 32
4.6.1. Examples of academic dishonesty	Page 32
4.7. Academic standards and student representation	Page 33
4.8. Campus services and facilities	Page 34

APPENDIX – semester one biological sciences module timetables	Page 37-40
---	------------

SECTION 1: Management of undergraduate teaching

1.1 Key contacts

Some key members of staff in the SLSL&T are listed to the right. In addition, each module has academic staff responsible for its academic content and for running the module (the Module Meader). Module Managers have teams of academic, clerical and technical staff to help them run the various component parts of the modules for which they are responsible. The names and E-Mails of the module Managers in Section 4 which provides descriptions of individual undergraduate modules run by the College of Life Sciences.

Key Contacts in SLSL&T

Dean: Professor David Coates
Phone: 01382 385111
Email: d.coates@dundee.ac.uk

School Secretary: Mrs Brenda Murphy
Phone: 01382 386438
Email: b.m.murphy@dundee.ac.uk

Head of L3: Dr Linda Morris
Phone: 01382 384682
Email: l.a.z.morris@dundee.ac.uk

1.2. Our responsibilities in the provision of teaching

The Module Manager is responsible for:

- producing a module handbook to explain the teaching aims and learning objectives of the Module;
- explaining the procedures by which you will be taught and examined;
- providing opportunities for you to judge your progress in the Module e.g. in the form of diagnostic or formative assessments;
- monitoring your attendance in classes, ask you to explain any unauthorised absence or other failure to participate in the work of the Module, and report you to the relevant Head or Year any failure to attend and/or participate, or for poor academic performance.

1.3. Seeking help, advice and information from SLSL&T

The SLSL&T Office reception is in **Room C.G.14** of the Carnelley Building and is a “one-stop-shop”, manned from 9am – 4.30pm, Monday to Friday if you wish to drop by in person.

To make an appointment to see the School Secretary or the Dean
Phone: 01382 384182 or
Email: SchoolOffice-LS@dundee.ac.uk

Contact details

L3 Teaching Support
Phone: 01382 388178
Email: lsuglevel3@dundee.ac.uk

1.4. MY DUNDEE

My Dundee is the University of Dundee's web-based student portal, giving you access to your learning materials, your student clubs and societies and many other College and discipline specific resources.

Logging into *My Dundee*

<http://my.dundee.ac.uk/>

The URL above takes you to the login page for *My Dundee* and requires the same username and password as your login to the University computer system. Alternatively, follow links to it from the University of Dundee Homepage, via Current Students > *My Dundee*. Your use of *My Dundee* is subject to University Regulations for the Use of Computer Facilities.

- *The My Dundee screen*: The initial screen that appears once you log on provides access to your modules, announcements, calendar, tasks and additional areas. You can customise your *My Dundee* page by adding extra features, and changing the colours and layout.
- *My Modules*: All modules you are enrolled in are available from the Course List under My Modules tab, or from My Modules on the right hand side of the *My Dundee* screen.
- *My Files*: This tab gives access to a personal file store on *My Dundee* which you will need if your course or module is making use of electronic portfolios.
- *My Webmail*: This tab gives access to your University GroupWise e-mail account.
- *PC Requirements*: You can access *My Dundee* using PCs in the University's IT suites. However, if you wish to logon from outside the University please follow the links below:

Browser and platform compatibility checks:

<http://kb.blackboard.com/pages/viewpage.action?pageId=71860304>

We also provide a link to a browser checker so that users can check their own setup:

<http://www.dundee.ac.uk/elearning/browserchecker/>

BSG275 Module : Life Sciences Undergraduate Students: Useful Information is the module where general useful information such as Degree Regulations and various important school documents such as Student Notification of Absence Form is stored for your information and use.

Further Help

If you have any problems using *My Dundee*, consult the Help tab, or try:

- ✓ *visiting* the IT Service Desk in the Tower Basement IT Suite or Main Library.
- ✓ *e-mailing* a description of your problem to elearning@dundee.ac.uk.

- ✓ *telephoning* – use the ‘Service Desk’ button on a phone in an IT Suite or on other phones dial extension 88000 (or 01382 388000 externally).

1.5. Help with academic matters

- Help from staff or Module Managers: If you have queries regarding module content or you wish one of the teaching staff or Module Managers to provide a reference or special letter, email the staff member specifying your query or requesting an appointment.
- Help from your Adviser of Studies: It is imperative that you speak to your Adviser of Studies if you are intending to make changes to your programme of study whether it is changing modules or changing degree programme. Your Adviser of Studies can also provide references for you. In addition, if you are having problems that are affecting your ability to study, it is advisable to report these to your Adviser of Studies and the Head of Year.
- Help from Heads of Years: You can also seek help from your relevant Head of Year who is Dr Linda Morris l.a.z.morris@dundee.ac.uk, for levels 1, 2 and 3.

1.6. Help with regulatory matters from the School Secretary:

Occasionally health or personal problems have such a debilitating effect that you may have to consider withdrawing temporarily from your studies if you are continuously absent from your studies for **3 weeks or more**. In this event you should discuss the matter with the School Secretary, who can advise on issues relating to Regulations and funding. Such discussions will be kept confidential, unless there are circumstances in which your interest would be best served by divulging the confidential information to other staff. Your permission would be sought in this event.

Degree examination timetables

Please note that Registry publish degree exam timetables on the University web site in November for semester 1, in March for semester 2 and in July for the resit diet. The examinations only take place on Campus and only at the particular times published in the exam timetables. There are no exceptions so beware when booking holidays or flights home within the semester dates given on the back cover of this booklet.

Degree examination results

Provisional semester 1 degree examination results will be available via eVision from the second week in January. The official results for both semester 1 and 2 will be available via eVision and also sent by post in June following the examination board meetings. The resit results will be available via eVision and by post in late August. Please note that examination results will **NOT** be conveyed via the telephone. Therefore, please **do not** telephone the SLSL&T office secretaries requesting this information,

SECTION 2: Your responsibilities as a student - learning, attendance and communication

2.1. Communication

It is your responsibility to keep yourself informed about the modules you are taking by reading and referring to the individual module handbooks available on-line via *My Dundee* and checking the following at least **once per day** for any urgent updates or rescheduling notices. You must use your University e-mail address for all communications with staff.

Check the following at least once per day for urgent updates or rescheduling notices

- ✓ **Your Dundee university Email account**
- ✓ ***My Dundee 'Announcements'***

From week 4 on a regular basis check

- ✓ **eVision**

and report any discrepancies, by email, to lsuglevel3@dundee.ac.uk address asap

2.2. Student attendance and participation

2.2.1 Attendance at compulsory classes and coursework submissions

You are encouraged to attend all lectures and scheduled classes in the timetables for all School of Life Science modules. However, for all modules, attendance at workshop and practical classes is **COMPULSORY** attendance registers are taken and it is your responsibility to ensure your attendance is noted each time.

At the end of the second week of teaching in both Semester 1 and 2 you will receive a general E-Mail reminding you of the importance of attending classes and submitting compulsory coursework. This is the only formal reminder you will receive about your attendance and submission of coursework.

Your attendance and course work submissions are strictly monitored and you should notify the School Office of any non-attendance or non-submissions using the appropriate procedure described in Section 2.2.3 below.

An accumulation of more than **one** unauthorised absence (AB) for either non-attendance and/or non-submission of coursework may result in your Duly Performed (DP) status being withdrawn for the affected module. DP status is a requirement for eligibility to take the degree examination, so withdrawal of your DP means that you are debarred from taking the degree examination for the module at both the first and second diet of exams. If your affected module is assessed by 100% coursework you will not be eligible to receive a grade for this module. You will receive a formal letter advising you of your DP withdrawal and offered an opportunity to meet with the School Secretary and Head (or Deputy Head) of Year.

2.2.2 Submitting your course work

Submission of all course work assignments (paper-based or electronic) are **COMPULSORY** and should be submitted according to the instructions given in the

Assessment and Submission Deadline sections in individual module handbooks. Unless otherwise informed, **ALL** coursework should be submitted in the black boxes in the basement level of the Carnelley Building. You will have your marked paper-based assessments returned to you through the School Office Reception in Carnelley room C.G.14. Students will be notified by email that coursework is ready for collection. Extensions to a submission deadline can only be given by a Module Manager and must be recorded by the School Office

2.2.3 What to do when absent from compulsory classes or examinations

If you are absent from classes, it is important that you complete a **Student Notification of Absence form**, available from the Life Sciences School Office reception in Carnelley room C.G.14, either before or within **SEVEN DAYS** following the class and/or assessment. Depending upon the circumstances, as outlined below, you may also be required to provide a medical certificate or letter explaining your absence.

- **Absences of up to 5 days:** You can self-certify by completing a Student Notification of Absence form. For minor illnesses, an MC grade will be entered into your assessment record. If your absence is due to a cause other than illness and the reason given on the Student Notification of Absence form is considered legitimate, then a certified absence (CA grade) will be granted.
- **Absences of more than 5 days:** If an illness results in an absence of more than 5 days, then, in addition to the Student Notification of Absence form, a medical certificate signed by a GP will also be required. If the absence is for reasons other than illness, then you must submit a letter explaining the prolonged absence. In the latter case, you will be informed if your reason for absence is deemed to be certified.
- **Absence requests for extra curricula activities** must be made in writing to the School Office well in advance of the event **not after**. You are unlikely to be retrospectively awarded a Certified Absence.
- **Self Certification :** Please note that in the interest of ensuring you receive the optimum learning experience and reach your full potential on your modules, only two occasions of self-certified absences/non-submission of course work can be sustained. If your attendance record shows more than two MC's (Medical related) or CA's (non-medical related) you will be invited to meet with the School Secretary and Head (or Deputy Head) of Year, to review your position with regard to missed classes and/or course work.

2.2.4. Absence from exams (in-course tests as well as degree exams)

Email SchoolOffice-LS@dundee.ac.uk or telephone 01382 384182 as soon as possible. In addition, if you miss the examination due to illness, you must send in a medical certificate within **SEVEN DAYS** following the examination. Self-certification is not allowed for absence from examinations. If you miss an examination, through no fault of your own, for reasons other than illness, then you must submit corroborative documentation within **SEVEN DAYS** following the examination.

2.2.5. Life Sciences Scrutiny Committee procedure

If, during the course of your studies, you experience unforeseen and unavoidable circumstances that you believe have had a **significant negative impact** on your performance in coursework and/or examinations, you should submit your case (including supporting evidence where possible) in confidence for consideration by the College of Life Sciences Scrutiny Committee. The Scrutiny Committee meets in advance of the examination boards for modules to consider submissions made to the committee and makes recommendations to the Board of Examiners on the level of support that should be given in each case. In accordance with the Data Protection Act, no significant details of any submission to the Scrutiny Committee are revealed to the Board of Examiners.

How to report mitigating circumstances to the Scrutiny committee

- Fill in a Scrutiny Committee Form, which you can download from the module BSG275 Life Sciences Undergraduate Students: Useful Information on *My Dundee*. or obtain from the Life Sciences School Office reception in Carnelley room C.G.14, giving brief details of how your work was affected - e.g. unable to concentrate for revision etc.
- Provide documentary evidence of the problem giving some indication of the period of time involved e.g. doctor's note, a statement of support from a third party (e.g. Adviser of Studies, parents) to support your case.
- The Scrutiny Committee Form will have the submission dead-line clearly identified and it is your responsibility to ensure that this form is submitted to the Life Sciences School Office on or before the dead-line provided. It may not be possible to consider late submissions.

Please note that you will not normally receive feedback on your submission from the Scrutiny Committee.

2.2.6. Consequences of absence and/or failure to submit coursework

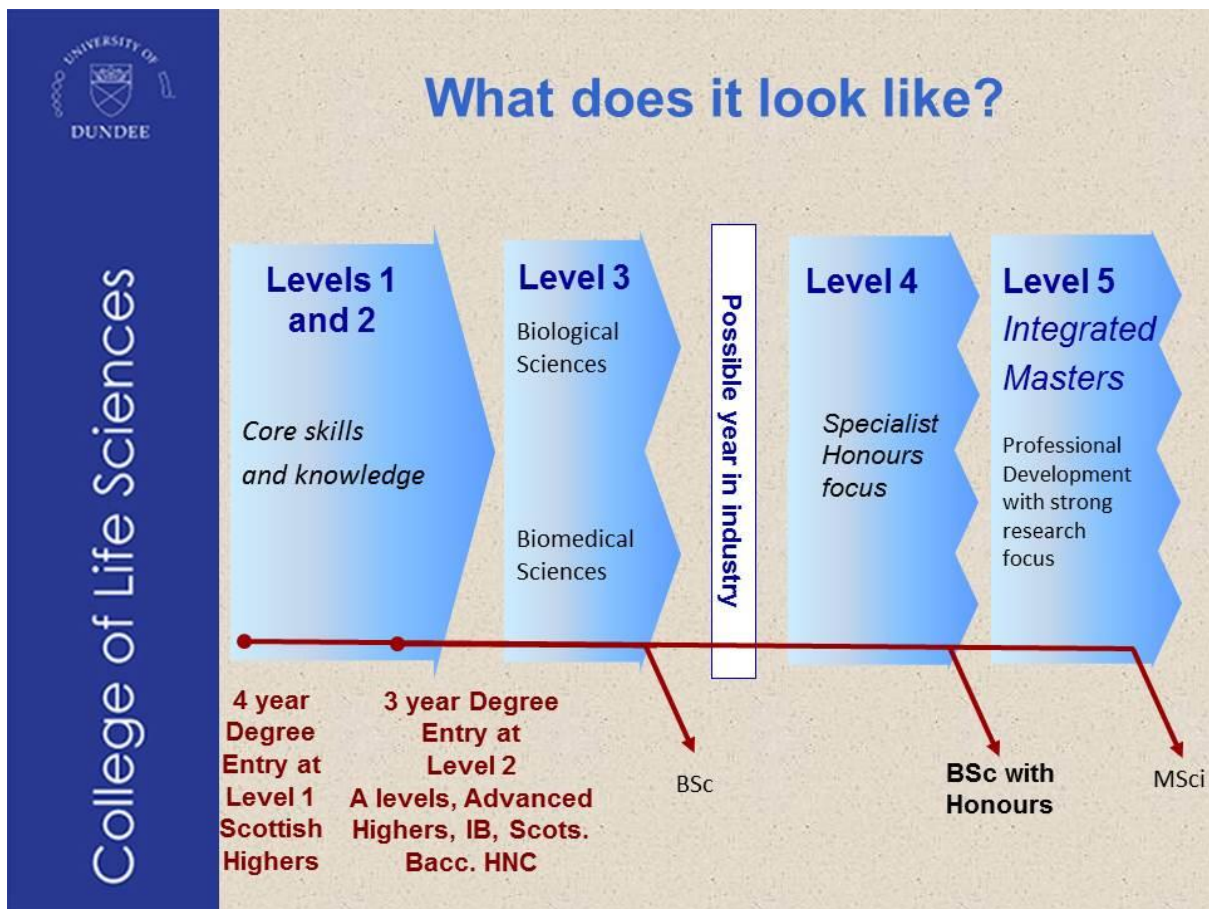
Prolonged absence - In the event of prolonged absence from classes for a period of more than 3 weeks, for any cause including legitimate reasons, you may require the consent of the Academic Senate for you to be allowed to enter the Degree examinations.

Withdrawal of DP – In the event that you have unexplained absences from compulsory scheduled classes for a module and/or have failed to submit compulsory coursework for no good reason, you may have your Duly Performed (DP) certificate removed which debars you from sitting the degree examination.

Discounted year - In the event that you are prevented from engaging with your study for legitimate reasons over a prolonged period, you may apply through the Life Sciences School Office to have the year discounted. An application for a discounted year should be submitted to the Life Science School Secretary as soon as possible and in any event not later than the end of semester 2 (before the Easter break). It is possible to retain credits already accrued from modules completed in the discounted year.

SECTION 3: Degrees in Life Sciences and Modular Structure

College of Life Sciences Degree Programme Outline



3.1.1. Life Science Level 3 Biological Sciences general information

You have now chosen whether you wish to specialise in the biological or biomedical stream. Students are automatically enrolled on modules essential for their chosen degree route but you may wish to check which modules these are by referring to the degree regulations available on the module Life Sciences Undergraduate Students: Useful Information on *My Dundee*.

3.1.2. Assessment

We use a variety of assessment types at Level 3 as listed below, you will be familiar with many of these from your previous studies:

Module type	Assessment type	Learning outcomes assessed
Theory and practical	On-line examination and tests (using QMP and EOL)	Core knowledge, numerical skills, problem solving and critical thinking.
Theory	Written exams – short answer, problems and essays	Core knowledge, numerical skills, problem solving and critical thinking.
Practical and theory	Presentations (oral and poster)	Communication skills and presentation of data.
Practical	Laboratory competence evaluation (experimental plans, risk assessments, lab books)	Practical skills, record keeping, organisational and planning skills.
Practical and theory	Scientific writing (reports, case studies, literature review, essays)	Written communication, presentation and analysis of data, critical thinking and problem solving
Theory and Practical	Data analysis	The ability to take raw data from a variety of sources, interpret and/or transform it and then present the results .

3.1.3. Feedback

You will receive feedback on all your coursework submissions which may be provided in a variety of forms e.g. hard copy feedback sheets, electronic feedback sheets, oral feedback (individual or group).

3.1.4. Core textbooks

The four semester one modules in Biological Sciences are the foundation for the specialist modules in semester two. To support your studies there are three recommended textbooks, many copies of which can be found in the library or can be bought either new or second-hand. In addition to these textbooks, lecturers will recommend other materials for your study.

Introduction to Genetic Analysis ,Griffiths *et al* ,10th Edition, Palgrave, (earlier editions are also suitable)

Molecular Biology of the Cell, Alberts, B. *et al.* 5th edition, Garland Science, (other editions are also suitable)

Genes IX, Lewin, B,Prentice Hall (other editions are also suitable)

3.1.5. Life Science modules at Level 3

LEVEL 3 BIOLOGICAL SCIENCES MODULES	
SEMESTER 1 BLOCK A	SEMESTER 2 BLOCK C
BS31003 Molecular Structure & Interactions (15 Credits)	BS32004 Molecular Microbiology (15 Credits)
BS31005 Genetics (15 Credits)	BS32006 Cell Signalling (15 Credits)
BS31007 Neurophysiology (15 Credits)**	BS32007 Organic Synthesis (15 Credits)
BS31009 Molecular Pharmacology (15 Credits)**	BS32005 Cell & Developmental Biology (15 Credits)
	BS32011 Practical Project A(15 Credits)
	BS32113 Respiratory & Renal Physiology (15 Credits)**
	BS32015 Systems Pharmacology (15 Credits)**
SEMESTER 2 BLOCK B	SEMESTER 2 BLOCK D
BS31004 Biochemistry & Cell Biology (15 Credits)	BS32003 Drug Discovery and Development (15 Credits)
BS31006 Gene Regulation & Expression (15 Credits)	BS32009 Immunology (15 Credits)
BS31008 Endocrine Control of Body Homeostasis (15 Credits)**	BS32010 Applied Bioinformatics (15 Credits)
BS31010 Neuropharmacology (15 Credits)**	BS32008 Plant Science (15 Credits)
	BS32012 Practical Project B (15 Credits)
	BS32014 Gastrointestinal Physiology and Nutrition (15 Credits)**
	BS32016 Systems Pharmacology (15 Credits)**

** Options from the Biomedical stream

Biological Sciences Structure for level 3

SEMESTER 1

Block A Weeks 1 to 5

Block B Weeks 7 to 12

Molecular structure
and interactions

Biochemistry &
Cell Biology

Genetics

Gene Regulation
and Expression

Biological Sciences students must take either three of these plus one Biomed.module or all four

Non-timetabled week : Week 6

All modules = 15 credits

SEMESTER 2

Block C Weeks 15 to 19

Block D Weeks 21 to 25

Molecular
Microbiology

Applied
Bioinformatics

Cell Signalling

Plant Sciences

Cell & Developmental
Biology

Immunology

Organic synthesis

Drug Discovery

Practical Module 1
Project 1 to 3

Practical Module
1
Project 4 to 7

Non-timetabled week : Week 20

Students must take a minimum of four modules and are able to select three theory modules and at least one practical project based module. Alternatively students may wish to select one of their chosen theory modules from the range of optional modules available in the Biomedical Sciences stream where timetabling allows.

3.1.6. Level 3 module descriptions

Below are outline descriptions of the modules and an overview of how each will be assessed. Lecture outlines will be available on My Dundee plus detailed criteria for each assessment. There are no printed handbooks for these modules.

Semester 1 Block A Modules

BS31003: Molecular Structure & Interactions (15 credits)

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module: The aim of this Module is to introduce students to specific topics within the area of molecular structure and interactions analysis that will underpin the more specialised areas which students will encounter in Semester 2 of Level 3 and in Level 4. The module also aims to introduce students to the study of interactions that underpin biological events or early stage drug discovery and strengthen students' skills in scientific writing, critical analysis of scientific literature and in self-directed learning.

Topics covered in the module are as follows:-

- High-throughput DNA sequencing and genome annotation
- Secondary structure, disorder, post-translational modification
- Cloning
- Single crystal X-ray diffraction methods
- Use of bioinformatics resources and databases
- Scientific paper analysis

Intended learning outcomes

Students should be able to explain the principles that underlying processes of:

- Informatics
- Protein sequence analysis
- Sample acquisition
- Revealing structures and interactions

Assessment

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date for Submission
BS31003	001	Exam	Exam	90	Exam Timetable
	002	CW	Bioinformatics report	10	Fri 25.10.13
			Total %	100	

BS31005: Genetics (15 credits)

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

This module will study model genetic systems, genome structure and evolution, genetic polymorphism, genetic markers and mapping, population genetics, genetic networks, and reverse genetics.

Intended learning outcomes

Topics covered in the module are as follows:-

- the important main threads of modern genetics
- How DNA becomes damaged
- Genetic mapping
- Dissecting genetic networks
- Model Genetic systems (3)
- Genome analysis (5)
- Genetics and genomics of populations (5)

Assessment

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date for Submission 2013/14*
BS31005	001	Exam	Final exam	60	Exam Timetable
	002	CW	Assessed unit 1	10	Week 2
	003	CW	Assessed unit 2	10	Week 4
	004	CW	Assessed unit 3	10	Week 5
	005	CW	Assessed unit 4	10	Week 5

Semester 1 Block B Modules

BS31004: Biochemistry & Cell Biology (15 credits)

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

The aim of this Module is to introduce students to specific topics within the area of Biochemistry and Cell Biology that will underpin the more specialised areas that the students will encounter in Semester 2 of Level 3 and in Level 4. The Module also aims to strengthen students' skills in scientific writing, critical analysis of scientific literature and in self-directed learning.

Intended learning outcomes -

Topics covered in the module are as follows:-

- How proteins function at the molecular level
- Protein folding, targeting, posttranslational modification and turnover
- The cytoskeleton, molecular motors, cell division and how cells form tissues
- Cell signalling and regulation of metabolism
- Bioenergy and photosynthesis
- Systems Biology approaches

Skills

Students will develop and apply skills in problem solving and numeracy in critical analysis of scientific literature and in scientific writing and communication.

Amended Structure for 2013/14

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Name	%	Due Date for Submission
BS31004	001	Exam	End of Module Exam	60	Exam Timetable
	002	CW	Science Communication task	40	Week 11
			Total %	100	

BS31006: Gene Regulation & Expression (15 credits)

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

The aim of this module is to introduce students to specific topics within the area of Gene Regulation and Expression including examples of how defects at the molecular level result in disease. Topics will include

- transcription
- translation
- mRNA processing
- RNAi and miRNA function and utilisation
- DNA recombination
- Epigenetics
- genetic disease

Intended learning outcomes

Students will understand the fundamental processes in molecular biology that are critical for gene expression in relation to cellular function

To be able to apply this knowledge and other information to explain the mechanism by which at least one disease state is manifest by perturbation and mutation of the apparatus to allow normal function.

Skills

Students will develop and apply skills in problem solving and numeracy in critical analysis of scientific literature and in scientific writing

Assessment

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Name	%	Due Date for Submission
BS31006	001	Exam	End of Module Exam	60	
	002	Exam	Data Analysis (under exam conditions)	10	Week 10*
	003	CW	Essay	15	Week 10, (Thursday)
	004	Exam	Numeracy Assessment (under exam conditions)	5	Week 11*
	005	CW	Paper summary	10	Week 11 (Thursday)

Semester 2 Block C Modules

BS32004 Molecular Microbiology [15 Credits]

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

The aim of this Module is to introduce students to specialist topics within the areas of bacterial and fungal microbiology. This module will underpin more specialised areas of molecular microbiology that the students will encounter in their Level 4 laboratory projects and in Semester 2 of Level 4. The module aims to strengthen students' skills in problem solving, critical analysis of scientific literature, and in self-directed learning.

Intended learning outcomes

Students will be able to explain broad aspects of microbiology and relate this to protein structure / function and molecular genetics. Students will understand the principles that underlie the processes of:

- How bacteria sense, respond and move to environmental stimuli.
- Nutrient sensing and uptake by bacteria
- How, why and when antibiotics are produced by bacteria.
- The bacterial cytoskeleton, molecular motors, and the process of cell division in prokaryotes.
- Multicellular and community behaviour in bacteria and fungi
- Geomicrobiology and its applications
- Fungal cell wall biosynthesis
- The molecular basis of pathogenicity and virulence in bacteria

Assessment

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Name	%	Due Date for Submission 2013/14
BS32004	001	Exam	End of module exam	60	Exam Diet
	002	CW	Workshop SAQ	5	Week 15
	003	CW	Workshop SAQ	5	Week 16
	004	CW	Essay	25	Week 17
	005	CW	Poster	5	Week 19
			Total %	100	

BS32006 Cell Signalling [15 Credits]

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk **Brief description of module:**

This module will cover methods of cell-to-cell communication, signal transduction pathways, key proteins in signal transduction and downstream effects.

Intended learning outcomes

Skills

- data handling and analysis
- oral presentation of work
- essay writing
- literature analysis
- personal reflection and self-assessment of skills

Assessment

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date for Submission
BS32006	001	Exam	Final Exam	60	Exam Diet
	002	CW	Data handling	10	31/01/14
	003	CW	Paper comprehension	10	7/02/14
	004	CW	Extended essay	20	14/02/14
			Total %	100	

BS32007 Organic Synthesis [15 Credits]

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

This module should give students an in-depth understanding of the main organic reactions used in modern synthetic laboratories with particular respect to the design of molecules for drug discovery.

Intended learning outcomes

Students will gain a knowledge and understanding of the main organic reactions and mechanisms. They will be able to predict products of reactions and represent the mechanisms of the reactions using curly arrow notation and be able to design a synthetic strategy to produce a desired product(s)

Assessment

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date for Submission
BS32007	001	Exam	End of module Written Exam	80	Exam Diet
	002	Test	Test 1	10	Week 23
	003	Test	Test 2	10	Week 25

BS32005 Cell & Developmental Biology [15 Credits]

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

This module is to introduce students to the specialist area of study of developmental biology building on their core curriculum in levels 1&2 and Semester 1 of Level 3. To give the student an understanding of the stages and processes involved in the development of organisms. Topics include: Morphogenesis, patterning embryos, patterning tissues, morphogenetic movements, development and diseases stem cells.

Intended learning outcomes

- Students will be able to explain broad aspects of the development of vertebrates and invertebrates and what happens when these processes go wrong.
- Students will develop their literature review skills, and group working and ways of presenting information in an informative manner.
- Skills

Assessment:

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Name	%	Due Date for Submission
BS32005	001	Exam	End of Module Exam	60	Exam diet
	002	CW	Study exercise (SAQs)	10	Week 17
	003	CW	Essay	10	Week 19
	004	CW	Problem solving	10	Week 19
	005	CW	Poster	10	Week 20

BS32011 Practical project A [15 Credits]

Module Manager: Prof. David Coates d.coates@dundee.ac.uk

Brief description of module:

This module will build on practical experience in Years 1 & 2 and provide training for the final year research project. This module will offer a range of projects related to specialist modules in semester 2

Project Titles include:-

1. Applied Bioinformatics
2. Microbial Cell Biology
3. Molecular Biochemistry

Intended learning outcomes

- experimental planning
- risk assessment and data analysis

Skills

- researching and understanding scientific literature.

Assessment: As both the nature of the projects and their outcomes are very different, details of how each will be assessed will be available on My Dundee.

Semester 2 Block D Modules

BS32003 Drug Discovery and Development [15 Credits]

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

- This module will give students an understanding of the process involved in identifying drug targets and developing drugs against that target including assay development.

The main topics discussed include target identification, assay development, pharmacokinetics, and structure activity relationships (SAR).

- Intended learning outcomes
- Students will gain a knowledge and understanding of the drug development process from target identification to assay development and pre-clinical trials.

Skills

- Problem solving and group working, statistical analysis of data sets, assessment of structure activity relationship data

Assessment:

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date for Submission 13/14
BS32003	001	Exam	End of Module Exam	60	Exam diet
	002	CW	Data analysis	10	Week 22
	003	CW	Essay	10	Week 24
	004	CW	Presentation	5	Week 25
	005	CW	Data analysis 2	15	Week 25

BS32008 Plant Science [15 Credits]

Module Convenor: Professor Andrew Flavell a.j.flavell@dundee.ac.uk

Brief description of module:

- This module will study the structures and diversities of plant genomes, plant sexual strategies, plant responses to the environment, hormonal signalling, developmental programming, seasonal change, symbionts and pathogens.
- Intended learning outcomes
- plant genomes
- plants and the environment
- plants and human welfare
- plant development
- plants and their biotic environment
- plant improvement

Skills

- researching and understanding scientific literature skills

Assessment:

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date for Submission*
BS32008	001	Exam	Final exam	60	Exam diet
	002	CW	Assessed unit 1	6.667	Week 2
	003	CW	Assessed unit 2	6.667	Week 3
	004	CW	Assessed unit 3	6.667	Week 4
	005	CW	Assessed unit 4	6.667	Week 5
	006	CW	Assessed unit 5	6.667	Week 5
	007	CW	Assessed unit 6	6.667	Week 5

BS32009 Immunology [15 Credits]

Module Manager: Dr Linda Morris l.a.z.morris@dundee.ac.uk

Brief description of module:

- This module will provide students with a broad understanding of key topics in immunology. This module will underpin more specialised areas of immunology that the students will encounter in their Level 4 laboratory projects and in Semester 2 of Level 4. The module aims to strengthen students' skills in problem solving, critical analysis of scientific literature and will be able to explain central concepts in the field of immunology and relate this to protection against infectious disease.
- Intended learning outcomes
- Students will be able to explain central concepts in the field of immunology and relate this to protection against infectious disease.
- Innate immune mechanisms that sense and eliminate pathogens
- Processing and presentation of antigenic material to drive immune responses
- Antibody-mediated protection
- Development and activation of B and T lymphocytes
- Lymphocyte function
- Mucosal immune defences
- Immunological memory and vaccination
- Immunity to viruses
- Immunodeficiency diseases
- Autoimmune diseases
- Immune hyperreactivity

Assessment

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date (week numbers)
BS32009	001	Exam	End of module exam	60	Exam Diet
	002	CW	Paper analysis SAQ	10	22
	003	CW	Workshop MCQ/SAQ	10	23
	004	CW	Workshop MCQ/SAQ	10	24
	005	CW	Workshop MCQ/SAQ	10	25

BS32010 Applied Bioinformatics [15 Credits]

Module Managers: Dr David Martin and Dr David Booth d.m.a.martin@dundee.ac.uk
d.z.booth@dundee.ac.uk

Brief description of module:

- This module build on the basic bioinformatics introduced in Years 1 and 2, and give students a broad understanding of modern bioinformatics using Python programming and bioinformatics toolkits to study algorithms used for phylogeny, data mining, interpretation of high throughput data including next generation sequencing analysis and statistical evaluation of the relevance of results.
- Intended learning outcomes
- of the role of bioinformatics in modern biological research

Skills

- Be able to apply bioinformatics methods to answer biological questions
- Gain proficiency with a range of bioinformatics tool-kits

Assessment:

Module Assessment Pattern Table (MAP) code	Sequence number	Assessment Type Table (AST) code	Standard Full Name	%	Due Date for Submission
BS32010	001	CW	Project Viva	40	28/03/2014
BS32010	002	CW	Project Presentation	10	28/03/2014
BS32010	003	CW	Submission 1	10	21/03/2014
BS32010	004	CW	Submission 2	10	14/03/2014
BS32010	005	CW	Submission 3	10	07/03/2014
BS32010	006	CW	Submission 4	10	28/02/2014
BS32010	007	CW	Submission 5	10	21/02/2014

BS32012 Practical project B [15 Credits]

Module Manager: Prof. David Coates d.coates@dundee.ac.uk

Brief description of module:

- This module will build on practical experience in Years 1 & 2 and provide training for the final year research project. This module will offer a range of projects related to specialist modules in semester 2
- Project Titles include:-
- Applied Bioinformatics
- Cell & Developmental Biology
- Synthetic Biology
- Drug Discovery
- Intended learning outcomes
- experimental planning
- risk assessment and data analysis

Skills

- researching and understanding scientific literature.

Assessment: As both the nature of the projects and their outcomes are very different, details of how each will be assessed will be available on My Dundee.

Options from Biomedical stream:

BS31007: Neurophysiology (15 credits)

Module Manager: Dr Alexander Harper a.a.harper@dundee.ac.uk

Brief description of module:

Students will acquire a good understanding of the physiology of the central and peripheral nervous systems. Topics covered in the module are as follows:-

- Techniques for investigating the molecular and cellular physiology of neurones
- Organisation of the nervous system and cellular neuroanatomy
- Electrical properties of neurones and homeostasis
- Active propagation of neural signals
- Synaptic transmission and ligand-gated ion channels
- Metabotropic transmission and neuromodulation
- Sensory transduction
- Sensory systems
- Motor systems

Intended learning outcomes

After successful completion of this module students should be able to demonstrate knowledge and understanding of how nervous systems are built and function, using examples from all stages of neural organization (from signalling pathways to integrated reflex pathways).

Skills

- Students will develop and apply skills of problem solving and data analysis in critical evaluation of scientific literature and in scientific writing.
- Students will be able to apply practical physiological techniques to study the nervous system.

BS31009: Molecular Pharmacology (15 credits)

Module Manager: Dr A. J. Irving a.j.irving@dundee.ac.uk

Brief description of module:

This module emphasises core knowledge and its application and development of transferable skills. Students should acquire a good understanding of molecular pharmacology including receptor theory and downstream biochemical signalling pathways.

Topics include:

- Receptor theory
- The nature of receptors
- Signalling via G-protein coupled receptors
- Signalling via small G-proteins
- Regulation of GPCR function and trafficking
- GPCRs in drug discovery
- Signalling *via* adenylate and guanylate cyclase (cAMP, cGMP)
- Phosphodiesterases
- Signalling *via* phospholipases A & C
- Signalling *via* Ca²⁺ and cellular Ca²⁺ homeostasis

Intended learning outcomes

- Students should understand the relationship between receptor occupancy and effect for agonists and how antagonists act to block receptors.
- Using examples from various signalling pathways (specified below), students should be able to describe and explain the cellular actions of neurotransmitters and exogenous agents and how these may be modulated by pharmacological agents.

BS31008: Endocrine Control of Body Homeostasis (15 credits)

Module Manager: Professor Hari Hundal h.s.hundal@dundee.ac.uk

Brief description of module:

This module outlines the physiological importance of the endocrine system in maintaining body homeostasis. Topics covered will include: the role of hypothalamic/pituitary axis; thyroid hormone and regulation of metabolic rate; hormonal control of growth and calcium homeostasis; insulin and its impact on fuel metabolism; obesity, appetite control and diabetes; the function of adrenal hormones; hormonal control of reproduction

Intended learning outcomes

Students should be able to demonstrate knowledge and understanding of the endocrine system and its impact upon control of key processes such as:

- Regulation of blood sugar

- Calcium balance
- Appetite/satiety
- Reproduction

Skills

Students will develop and apply skills of problem solving and data analysis in critical evaluation of scientific literature and in scientific writing.

BS31010: Neuropharmacology (15 credits)

Module Manager: Dr. C.A. Stewart c.a.stewart@dundee.ac.uk

Brief description of module:

This is a module that emphasises core knowledge and its application and development of transferable skills.

Students should acquire a good understanding of the pharmacology of the central and peripheral nervous systems.

Intended learning outcomes

After successful completion of this module:

- Using examples from various neurotransmitter systems, ranging from aspects of synaptic transmission to animal behaviour, students should be able to describe and explain chemical transmission within the nervous system and how this may be modulated to achieve therapeutic benefit in several disorders of nervous system function.

Skills

- Students will learn how to perform complex data analyses and solve problems related to neuropharmacology.
- Students will be competent in practical physiological techniques involved in study of the nervous system.

BS32013 Respiratory & Renal Physiology [15 Credits]

Module Manager: Dr Graham Christie g.r.christie@dundee.ac.uk

Brief description of module:

Student completing this module should acquire a good understanding of the physiology of the respiratory and renal systems. Topics will include the following: the structure/function of epithelia, introduction to respiration, carriage of O₂/CO₂ in the blood mechanics of breathing, alveolar gases/ventilation-perfusion relationships, regulation of breathing, neural and chemical control of breathing, pathophysiology (e.g. CF, COPD, asthma), body fluid compartments, kidney: Structure and function, Glomerular filtration and renal blood flow, the proximal tubule, the Loop of Henle, the distal tubule and collecting ducts, control of body fluid volume and composition, pathophysiology (e.g. diabetes insipidus, Dent's disease, Fanconi syndrome, kidney stones)

Intended learning outcomes

After successful completion of this module students should be able to demonstrate knowledge and understanding of the functions of respiratory and renal systems in human physiology.

Students will develop and apply skills of problem solving and data analysis in critical evaluation of scientific literature and in scientific writing. They will also be able to apply practical physiological techniques involved in study of respiratory and renal physiology.

BS32015 Systems Pharmacology 1 [15 Credits]

Module Manager: Dr Graham Rena g.rena@dundee.ac.uk

Brief description of module:

This module emphasises core knowledge and its application and development of transferable skills.

Students should acquire a good understanding of aspects of Systems Pharmacology that particularly involve signalling by hormones. Topics include:- Thyroid hormones; Endocrine pancreas and signalling by insulin; Signalling *via* kinase-linked receptors; Obesity; The adrenal cortex (glucocorticoids); Sex steroids; Signalling *via* nuclear receptors; Anti-inflammatory and immunosuppressant drugs; Haemostasis and thrombosis; and Atherosclerosis and lipoprotein metabolism

Intended learning outcomes

- Describe the role of the endocrine system in the control of numerous physiological processes
- Explain how many commonly prescribed drugs act to modify, or mimic the actions of hormones.
- Demonstrate knowledge of lipid metabolism and the blood coagulation cascade and drugs that are used in dyslipidaemias and blood disorders.

Skills

- Students will learn how to perform complex data analyses and solve problems in the field of systems pharmacology.

BS32014 Gastrointestinal Physiology and Nutrition [15 Credits]

Module Manager: Dr Pete Taylor p.taylor@dundee.ac.uk

Brief description of module:

- This module emphasises core knowledge and its application and development of transferable skills. Students should acquire a good understanding of the physiology of the gastrointestinal tract (GIT) and nutrition. Topics include:- structure/function of the GIT and accessory organs; salivary glands and deglutition; the stomach; digestion and absorption of carbohydrate, protein, lipids; dietary requirements and micronutrients; ion, solute and fluid balance: How it is regulated and what happens when it goes wrong; Integration of function and disorders of GIT function; evacuation from the GIT: Emesis and the large intestine; metabolic rate, the effect of exercise, fasting/growth and endocrine influences; and the measurement of energy expenditure and body composition.

Intended learning outcomes

After successful completion of this module students should be able to demonstrate knowledge and understanding of gastrointestinal physiology and the basic principles of human nutrition. Students will develop and apply skills of problem solving and data analysis in critical evaluation of scientific literature and in scientific writing. They will also learn to apply practical physiological techniques in the study of human nutrition.

BS32016 Systems Pharmacology 2 [15 Credits]

Module Manager: Professor J. A. Peters j.a.peters@dundee.ac.uk

Brief description of module:

- This module emphasises core knowledge and its application and development of transferable skills.
- Students should acquire a good understanding of aspects of Systems Pharmacology that particularly involve the respiratory, gastrointestinal and renal systems and also elements of clinical pharmacology. Topics include: Drugs acting on the respiratory system; Drugs acting on the kidney; Drugs acting on the G.I. tract; Drug disposition; Drug metabolism; Pharmacokinetics; Pharmacogenomics; Drug discovery and development

Intended learning outcomes

- Explain the molecular and cellular actions of drugs that act upon the respiratory, gastrointestinal and renal systems.
- Demonstrate a knowledge of drug disposition, pharmacokinetics, pharmacogenetics and the drug discovery/development process.
- Students will gain further experience in complex data analyses and problem solving in the field of systems pharmacology.

SECTION 4: Important regulatory information

4.1. The SCQF Credit Scheme and the Student Workload

The SCQF scheme envisages 1200 hours of work by you each year, based upon 40 hours a week for 30 weeks, successful completion of which will give you a total of 120 credits. The module credit rating indicates the total number of hours of effort that is required of you in that module e.g. a 20 credit module requires 200 hours of effort. Such a module could contain 30 hours of lectures, 25 hours of laboratory practicals and 5 hours of tutorials. The balance of the 200 hours (in this example 140 hours) must be spent by you on independent learning including background reading, getting your notes into shape, completing coursework, revision etc. If you obtain an overall pass grade for that module, you will be awarded 20 credits. If you fail, no credits will be awarded.

If you are a full-time student, you are expected to pass modules totalling 120 credits each year. Failure to do so may impact on the type of degree you achieve and the number of years it will take you to gain a degree.

4.2. Advisers of Studies – choosing your programme of study

You will meet Your Adviser of Studies when you first matriculate. They will help you to select modules to ensure that you gain the Modules necessary to proceed to the next year of study or to gain your intended degree. Your Adviser of Studies can also act as a Personal Tutor. This means that you are welcome to meet with your Adviser to discuss any matter giving rise for concern.

4.2.1. Changing modules and/or your programme of study

You must seek the permission of your Adviser of Studies if you wish to make any changes to your programme of study. Your Adviser is the only person authorised to agree changes. This could include substituting one Module for another, simply dropping one or more Modules (provided that you understand and accept the consequences of a reduced workload) or changing your degree in view.

You must make any changes to your module selection within 2 weeks of the start of Semester 1 or Semester 2.

4.3. Studying abroad and eligibility criteria

You may wish to spend a period of study overseas (a semester or year) as part of a University of Dundee degree and so should check out the information on one or other of the following at http://www.dundee.ac.uk/undergraduate/studying_abroad/

- **ERASMUS Life Long Learning Programme** - study and work placement in Europe 2nd or 3rd year for one or two semesters.
- **Transatlantic student exchange** - spend your 2nd year of study in either the USA or Canada.
- **Australasia student exchange** - spend one or two semesters of your 3rd year of study in Australia, New Zealand or Hong Kong.

4.3.1. Eligibility criteria

You must ensure that the programme of study you intend to take, at the host institution, is appropriate grounding for continuing with your chosen degree when you return to Dundee. Please note that, to have your application authorised by the Dean of the School of Life Sciences Learning & Teaching, you **MUST** satisfy the following criteria:

- ✓ You must have passes in all modules and a minimum of a **B3** grade average for the year of study prior to that during which you wish to go on the exchange.
- ✓ You must also have a good record of attendance and submission of in-course work for all years of study to date.

4.4. Prizes and Life Sciences award ceremony

- **Prizes** – There are various prizes and bursaries awarded by the School and College each year.
- **Awards Ceremony** – Students who have won module, School and College prizes are presented with certificates and prizes at a special Awards Ceremony which normally takes place in November of the new session.

4.5. Assessment and examinations

4.5.1. MC (medical certificate) and/or CA (certified absence) grades

Adjustments for MC/CA grades depend upon the element of assessment as follows:

- For assessed certified absence or non-submission of coursework, suitable adjustment will be made to the overall module grade to take these into account. Where this adjustment results in an upgrading, your overall module grade will be duly amended following the examiners meeting for the module.
- For certified absence from Degree examinations, your overall module grade will be amended to reflect 0 MC such that your coursework marks will go forward to the next diet of examinations for which your result will be recorded as a first attempt and not a resit on your official transcript.

4.5.2. Grade conversion tables used in summative assessment

Dependent upon the complexity and stakes of the assessment task a standard or stringent grade conversion is applied:

Examinations Standard % to Grade - conversion				Coursework Stringent % to Grade conversion			
%	GRADE	%	GRADE	%	GRADE	%	GRADE
0	AB	50	C3	0	AB	55	C3
1	BF	51	C3	1	BF	56	C3
2	BF	52	C3	2	BF	57	C3
3	BF	53	C2	3	BF	58	C3
4	BF	54	C2	4	BF	59	C3
5	BF	55	C2	5	BF	60	C2
6	BF	56	C1	6	BF	61	C2
7	BF	57	C1	7	BF	62	C2
8	BF	58	C1	8	BF	63	C2
9	BF	59	C1	9	BF	64	C2
10	BF	60	B3	10	BF	65	C1
11	BF	61	B3	11	BF	66	C1
12	BF	62	B3	12	BF	67	C1
13	BF	63	B2	13	BF	68	C1
14	BF	64	B2	14	BF	69	C1
15	BF	65	B2	15	BF	70	B3
16	BF	66	B1	16	BF	71	B3
17	BF	67	B1	17	BF	72	B3
18	BF	68	B1	18	BF	73	B3
19	BF	69	B1	19	BF	74	B3
20	CF	70	A3	20	CF	75	B2
21	CF	71	A3	21	CF	76	B2
22	CF	72	A3	22	CF	77	B2
23	CF	73	A3	23	CF	78	B2
24	CF	74	A3	24	CF	79	B2
25	CF	75	A3	25	CF	80	B1
26	CF	76	A3	26	CF	81	B1
27	CF	77	A3	27	CF	82	B1
28	CF	78	A3	28	CF	83	B1
29	CF	79	A3	29	CF	84	B1
30	CF	80	A2	30	CF	85	A3
31	CF	81	A2	31	CF	86	A3
32	CF	82	A2	32	CF	87	A3
33	CF	83	A2	33	CF	88	A3
34	CF	84	A2	34	CF	89	A3
35	MF	85	A2	35	MF	90	A2
36	MF	86	A2	36	MF	91	A2
37	MF	87	A2	37	MF	92	A2
38	MF	88	A2	38	MF	93	A2
39	MF	89	A2	39	MF	94	A2
40	D3	90	A1	40	D3	95	A1
41	D3	91	A1	41	D3	96	A1
42	D3	92	A1	42	D3	97	A1
43	D2	93	A1	43	D3	98	A1
44	D2	94	A1	44	D3	99	A1
45	D2	95	A1	45	D2	100	A1
46	D1	96	A1	46	D2		
47	D1	97	A1	47	D2		
48	D1	98	A1	48	D2		
49	D1	99	A1	49	D2		
		100	A1	50	D1		
				51	D1		
				52	D1		
				53	D1		
				54	D1		

4.5.3 Use of English translation dictionaries in examinations

If you are a student, whose first language is not English and you wish to use an English translation dictionary during exams, then you must apply, through the SLSL&T School Office, for a letter giving you permission to use a paper-based dictionary. You must take the letter to ALL examinations for checking, along with the dictionary, by the senior invigilator. **Electronic dictionaries are not allowed in exams.**

4.5.4. What can happen if you fail to pass modules?

Under normal circumstances you will have the opportunity to remediate a failed status within a module after a first sitting of the assessment, either by a second attempt at the examination in the resit diet, or submission of appropriate work or task if your module is continually assessed. Failure to pass a resit examination or reassessment task always has consequences for your Degree Programme. In the extreme event that you did not gain the prescribed minimum number of credits (80 credits per academic session for fulltime students), you would be subject to the Termination of Studies Regulations, in which case you will be informed of the procedures to be followed by letter, following publication of the results of the resit examinations.

- **Requirements for avoiding termination of studies:** if you are a full time student, you are required to acquire a minimum 80 credits for each academic year of attendance. If, by the end of the re-sit diet of exams, you have failed to acquire 80 credits for the year, you would be invited to submit an appeal, and your case would be considered by the college termination of studies committee, which would decide, following inspection of your academic record and consideration of any mitigating circumstances you present, whether to allow you to return or whether to require you to discontinue your studies. If the college requires you to discontinue your studies, you have the right to appeal to the equivalent senate committee.
- **Failing even one module**, although not necessarily leading to Termination of Studies, has an impact on your future because you have to gain enough credits for a Degree. A failed Module may have to be taken again the following year, possibly on an “extended DP”, which allows you to sit the examinations without attending classes. However, for students entering in 2006 and later, EDPs will be permitted to enable progression from Levels 1 to 2 ONLY. If you fail a level 2 or 3 module, you may be required to repeat the module in attendance.
- **If you fail more than 2 modules**, you may have to remain at the same level of study for another year and not be allowed to progress to the next level until you have gained the necessary credits
- If you are carrying a failed module(s) at the start of the new academic session you will have an appointment made to meet with the School Secretary and Head of Year to discuss the terms of your progression.

To summarise, failure to pass modules inevitably leads either to additional pressure at the next Level of Study, delayed progression to the next Level of Study (with consequent lengthening of the time and expense to achieve your degree) or even exclusion from your chosen programme of study. You should note also that fail grades appear on University Academic Transcripts which may be requested to support job applications.

4.6. Plagiarism and academic dishonesty

The University of Dundee's Code of Practice on Plagiarism and Academic Dishonesty may be viewed in full at <http://www.dundee.ac.uk/academic/plagiarism.htm>.

Plagiarism and other forms of academic dishonesty are particularly unpleasant forms of intellectual deceit. There are greater temptations for students to engage in these activities in assessed coursework, whether that be essays, computer programmes, laboratory or practical work or undergraduate and postgraduate dissertations and theses. Therefore prevention is particularly important and, where possible, plagiarism detection software is used. Also, teaching staff are experienced in identifying possible cases of academic dishonesty. The University regards academic dishonesty as an extremely serious offence of equal import to cheating in written examinations, and it is dealt with accordingly.

4.6.1. Examples of academic dishonesty include

- **Collusion** - the representation of a piece of unauthorised group work as the work of a single candidate.
- **Commissioning** - submitting an assignment done by another person as the student's own work.
- **Duplication** - the inclusion in coursework of material identical or substantially similar to material which has already been submitted for any other assessment within the University.
- **False declaration** - making a false declaration in order to receive special consideration by an Examination Board or to obtain extensions to deadlines or exemption from work.
- **Falsification of data** - presentation of data in laboratory reports, projects, etc based on work purported to have been carried out by the student, which have been invented, altered or copied by the student.
- **Plagiarism** - the unacknowledged use of another's work as if it were one's own. Examples are:
 - inclusion of more than a single phrase from another's work without the use of quotation marks and acknowledgement of source;
 - summarising another's work by changing a few words or altering the order of presentation without acknowledgement;
 - copying another's work;
 - use of another's ideas without acknowledgement or the presentation of work as if it were one's own which is substantially the ideas of another.

Further explanation and guidance on how to avoid infringing them can be found on the Advance@Dundee at: <http://www.dundee.ac.uk/advancedundee/D/d018p.htm>.

Particularly useful information on how (and how not) to paraphrase the work of others can be viewed at: http://www.wisc.edu/writing/Handbook/QPA_paraphrase.html.

4.7. Academic standards and student representation

The University has a responsibility to assure the standards of its academic awards and the quality of teaching. All students are given an opportunity to give us their individual views of the modules by completing electronic module evaluation questionnaires via *my Dundee*. Any constructive comments you make about modules are fed back and used in course monitoring and contribute to the future development of modules. This is a feature of the University Academic Standards procedure and is fully supported by DUSA. The results of the questionnaires will also be available to you via the *My Dundee* module.

- **School President and student representation** – For information on student representation within the university, check out the URL below:
http://www.dusa.co.uk/content/431393/about_us/
- The elected School President for Life Sciences for session 2013/14 will be confirmed in September 2013. It is the job of the School President to work with class representatives and other students to ensure issues and comments are picked up and brought to the attention of the appropriate committees such as the School Board of Life Sciences Learning & Teaching or the DUSA Student Representative Council meetings.
- **Class representatives and staff student liaison** – At the beginning of Level 1 we will ask for eight volunteers to take the role of Student Reps; to act as a spokespeople for their year and represent their student colleagues at Staff/Student Liaison Meetings. This appointment may be extended to Level 2 upon the agreement between the individual reps and Head of Level 1&2.
- Help with University regulations, teaching and learning

SLSL&T office staff can help with

- Absence forms and medical certificates
- Authorise official documents (Please note that a minimum of 48 HOURS notice is required in order to produce or authorise official documents so, please allow for this delay when you request such services)

The School Secretary can help with

- Applications for a discounted year, temporary withdrawal from studies or deferred year of study
- Applying to graduate with Cert HE, Dip HE, Ordinary and Honours degrees
- Permanent withdrawal from study and/or transfers to other Colleges and institutions

Teaching support by SLSL&T office staff includes

- Processing submitted coursework and the return of marked paper-based coursework
- Recording your attendance and academic grades for module assessments
- Helping make appointments with teaching staff
- For all other enquiries please contact the module manager or Head of Year.

4.8. Campus services and facilities

<http://www.dundee.ac.uk/main/currstud.htm>

There are a variety of Services and Facilities which provide information, support and advice for students including how to use the services and facilities on offer as well as providing self-help and/or information leaflets. These are listed in the 'Student Handbook' and also available on the web. Some of the most useful web links are listed below.

- **Student Services:** <http://www.dundee.ac.uk/studentsservices/>
- **Student Advisory Service:** <http://www.dundee.ac.uk/adviceguidance/ourservice.html>
- **Counselling Service:** <http://www.dundee.ac.uk/counselling/students.htm>
- **Health Service:** <http://www.dundee.ac.uk/healthservice>
- **The Registry:** <http://www.somis.dundee.ac.uk/registry/>. The Registry is responsible for matriculation, examinations and graduation and maintains the Student Record. In addition, the Registry produces student ID cards and provides certification of student status for Council Tax purposes, funding bodies, etc.
- **University Chaplaincy:** <http://www.dundee.ac.uk/chaplaincy/>. Fiona Douglas (University Chaplain) has appointed David Robertson (Honorary Chaplain to the University and to Dundee FC) to work alongside her within the College of Life Sciences. Fiona and David have indicated that they wish to be considered as an additional resource for the College. They will not be coming around knocking on doors, but they will be available for any student or member of staff (of any faith or none) who wishes to discuss any ethical or moral dilemmas, the relationship between science and religion or indeed any issue that you may wish to raise with them. Please feel free to contact Fiona f.c.douglas@dundee.ac.uk or David darobertson@blueyonder.co.uk.
- **Life Sciences Disability Officers:** <http://www.dundee.ac.uk/disabilityservices>

Disability Services is based in the Ewing Annexe on the main University campus and offers a range of confidential services dedicated to the support and empowerment of disabled students. All disabled students are advised to register with Disability Services as soon as possible in order for recommendations to be made for day to day teaching and examination support.

Disability Officers for Life Sciences

Mrs Brenda Murphy:

Phone: 01382 386438

Email: b.m.murphy@dundee.ac.uk

Mrs Monica Lacey:

Phone: 01382 384790

Email: m.lacey@dundee.ac.uk

- **Life Sciences Careers Officer Information** <http://www.dundee.ac.uk/careers>

The Careers Service is located at 166 Nethergate and you can just drop in to use the Information room which contains a wealth of literature regarding employment, further study, gap year, volunteering, funding and much more.

What is Offered? Help includes:

Work experience: Vacation/Semester

Employment; Career Choice, Finding a Job;

Application Form; CV;s; Graduate Selection Tests;

Further Study; Changing Course; Funding;

Careers Officers for Life Sciences

Lynsay Pickering:

Email: l.pickering@dundee.ac.uk

Opening Times

Monday – Friday

(0900 to 1700 hrs)

Interview Preparation; Mock Interviews

- **Library Services** <http://www.dundee.ac.uk/library/>

Provides a wide variety of services including how to find books, journals and electronic resources and life sciences students can request the help of the specific Librarians

Library Liaison Staff for Life Sciences

Margaret Adamson:

Phone: 01382 384317

Email: m.adamson@dundee.ac.uk

Rona Carstairs

Phone: 01382 385552

Email: r.m.carstairs@dundee.ac.uk

Helen Olafsson

Phone: 01382 385182

Email: h.a.olafsson@dundee.ac.uk

Life Sciences Study Guide Level 3 Biological Sciences 2013/14

Module timetables – remember that any changes to these will be announce on My Dundee so please check your modules daily.

BS31003 Methodologies

Day	Week	Date	Topic	Start	End	Room	Staff
Mon	1	09-Sep-13	Bioinformatics	15:00	16:00	Carnelley Small LT	Martin, David
Tue	1	10-Sep-13	Bioinformatics	9:00	10:00	Old Med Schl 2.03	Martin, David
Tue	1	10-Sep-13	Bioinformatics tutorial	11:00	13:00	Matthew 5018	Martin, David
Thu	1	12-Sep-13	Bioinformatics	9:00	10:00	Old Med Schl 2.03	Martin, David
Mon	2	16-Sep-13	Sample acquisition	15:00	16:00	Carnelley Small LT	Hunter, William
Tue	2	17-Sep-13	Sample acquisition	9:00	10:00	Old Med Schl 2.03	Hunter, William
Tue	2	17-Sep-13	Sample acquisition tutorial	11:00	13:00	Matthew 5018	Hunter, William
Wed	2	18-Sep-13	XRD	9:00	10:00	1 Perth Rd Accountancy LR	Hunter, William
Thu	2	19-Sep-13	XRD	9:00	10:00	Old Med Schl 2.03	Hunter, William
Fri	2	20-Sep-13	XRD	12:00	13:00	Old Med Schl 2.03	Hunter, William
Mon	3	23-Sep-13	XRD	14:00	15:00	Old Med Schl 2.03	Hunter, William
Mon	3	23-Sep-13	XRD	15:00	16:00	Carnelley Small LT	Hunter, William
Tue	3	24-Sep-13	ITC	9:00	10:00	Old Med Schl 2.03	Hunter, William
Wed	3	25-Sep-13	SPR	9:00	10:00	1 Perth Rd Accountancy LR	Hunter, William
Thu	3	26-Sep-13	Enzyme assays and kinetics	9:00	10:00	Old Med Schl 2.03	Hunter, William
Fri	3	27-Sep-13	Enzyme assays and kinetics	12:00	13:00	Old Med Schl 2.03	Hunter, William
Mon	4	30-Sep-13	Practical- Separation and identification of proteins	13:00	16:00	Carnelley G16 (Life Sci)/Carnelley G17 (Life Sci)	Morris, Linda
Tue	4	01-Oct-13	NMR	9:00	10:00	Old Med Schl 2.03	Morris, Linda
Tue	4	01-Oct-13	XRD Tutorial	11:00	13:00	Matthew 5018	Hunter, William
Thu	4	03-Oct-13	NMR	9:00	10:00	Old Med Schl 2.03	Morris, Linda
Mon	5	07-Oct-13	EPR	15:00	16:00	Carnelley Small LT	Norman, David
Tue	5	08-Oct-13	EPR	9:00	10:00	Old Med Schl 2.03	Norman, David
Tue	5	08-Oct-13	NMR Tutorial	11:00	13:00	Matthew 5018	Morris, Linda
Wed	5	09-Oct-13	Mass spectrometry	9:00	10:00	1 Perth Rd Accountancy LR	Trost, Matthais
Thu	5	10-Oct-13	Mass spectrometry	9:00	10:00	Old Med Schl 2.03	Trost, Matthais

Life Sciences Study Guide Level 3 Biological Sciences 2013/14

BS31005 Genetics

Day	Date	Week	Activity	Title		Start	Finish	Duration	Staff
Monday	09-Sep-13	1	A LecA1 gr01	Mutation	Lec	13:00	14:00	01:00	Flavell, Andrew
Tuesday	10-Sep-13	1	A LecB1 gr01	Transposable elements I	Lec	13:00	14:00	01:00	Flavell, Andrew
Thursday	12-Sep-13	1	A LecC1 gr01	Genes and markers	Lec	14:00	15:00	01:00	Russell, Joanne
Thursday	12-Sep-13	1	A LecD1 gr01	Genetic linkage analysis	Lec	15:00	16:00	01:00	Ramsay, Luke
Friday	13-Sep-13	1	A LecE1 gr01	Quantitative trait loci and QTL mapping	Lec	09:00	10:00	01:00	Ramsay, Luke
Monday	16-Sep-13	2	A LecA2 gr01	Genetic screening and identification of genetic networks	Lec	13:00	14:00	01:00	Gartner, Anton
Tuesday	17-Sep-13	2	A LecB2 gr01	Functional genomics 1	Lec	13:00	14:00	01:00	Gartner, Anton
Thursday	19-Sep-13	2	A TutB gr01	Assessed Unit 1	Tut	14:00	15:00	01:00	Ramsay, Luke
Thursday	19-Sep-13	2	A LecD2 gr01	Functional genomics 2	Lec	15:00	16:00	01:00	Gartner, Anton
Friday	20-Sep-13	2	A LecG2 gr01	Plant Developmental genetics	Lec	13:00	14:00	01:00	Simpson, Gordon
Tuesday	24-Sep-13	3	A LecB3 gr01	Animal Developmental genetics	Lec	13:00	14:00	01:00	Muller, Hans-Arno
Thursday	26-Sep-13	3	A LecC3 gr01	Microbial models	Lec	14:00	15:00	01:00	Sargent, Frank
Thursday	26-Sep-13	3	A LecD3 gr01	Mouse models for mammals	Lec	15:00	16:00	01:00	Arthur, Simon
Friday	27-Sep-13	3	A LecE2 gr01	Plant models	Lec	09:00	10:00	01:00	Simpson, Gordon
Friday	27-Sep-13	3	A LecG3 gr01	Genome evolution and repetitious DNA	Lec	13:00	14:00	01:00	Flavell, Andrew
Monday	30-Sep-13	4	A LecA4 gr01	Repetitious DNA and transposable elements	Lec	13:00	14:00	01:00	Flavell, Andrew
Tuesday	01-Oct-13	4	A LecB4 gr01	Genome evolution – genome duplication, polyploidy, synteny and lack of it	Lec	13:00	14:00	01:00	Flavell, Andrew
Tuesday	01-Oct-13	4	A TutA gr01	Assessed Unit 2	Tut	14:00	16:00	02:00	Simpson, Gordon,Gartner, Anton
Thursday	03-Oct-13	4	A LecC4 gr01	Gene structure	Lec	14:00	15:00	01:00	Flavell, Andrew
Thursday	03-Oct-13	4	A LecD4 gr01	Gene family evolution – duplication, divergence & deletion	Lec	15:00	16:00	01:00	Flavell, Andrew
Friday	04-Oct-13	4	A LecE3 gr01	Alleles in populations	Lec	09:00	10:00	01:00	Booth, David
Friday	04-Oct-13	4	A LecF1 gr01	Population substructure and population change	Lec	11:00	12:00	01:00	Booth, David
Monday	07-Oct-13	5	A LecA5 gr01	Evolution of DNA, populations and species	Lec	13:00	14:00	01:00	Booth, David
Tuesday	08-Oct-13	5	A LecB5 gr01	Phylogenetics	Lec	13:00	14:00	01:00	Booth, David
Thursday	10-Oct-13	5	A LecC5 gr01	Metagenomics	Lec	14:00	15:00	01:00	Booth, David
Friday	11-Oct-13	5	A TutC gr01	Assessed Unit 3	Tut	09:00	10:00	01:00	Flavell, Andrew
Friday	11-Oct-13	5	A TutD gr01	Assessed Unit 4	Tut	13:00	15:00	02:00	Booth, David

Life Sciences Study Guide Level 3 Biological Sciences 2013/14

BS31006 Gene Regulation & Expression

Day	Date	Week	Activity	Title		Start	Finish	Staff	Venue
Monday	21-Oct-13	7	A LecA1 gr01	Module Introduction	Lec	09:00	10:00	Stark, Michael	Old Med Schl 2.03
Monday	21-Oct-13	7	A LecB1 gr01	Prokaryotic Transcription	Lec	15:00	16:00	Zomerdijk, Joost	Old Med Schl 2.03
Tuesday	22-Oct-13	7	A WorkshopA1	Numeracy workshop	Workshop	13:00	15:00	Stark, Michael	Old Med Schl 2.02B (Life S
Tuesday	22-Oct-13	7	A LecC1 gr01	Eukaryotic Transcription 1	Lec	16:00	17:00	Zomerdijk, Joost	Old Med Schl 2.03
Thursday	24-Oct-13	7	A LecD1 gr01	Eukaryotic Transcription 2	Lec	10:00	11:00	Zomerdijk, Joost	Tower Baxter 1.36
Friday	25-Oct-13	7	A LecE1 gr01	mRNA processing 1	Lec	11:00	12:00	Lamond, Angus	Carnelley Small LT
Monday	28-Oct-13	8	A LecA2 gr01	mRNA processing 2 and 3	Lec	09:00	11:00	Lamond, Angus	Old Med Schl 2.03
Tuesday	29-Oct-13	8	A WorkshopA	Data interpretation workshop	Workshop	13:00	15:00	Stark, Michael	Old Med Schl 2.02B (Life S
Tuesday	29-Oct-13	8	A LecC2 gr01	translation 1	Lec	16:00	17:00	Stark, Michael	Old Med Schl 2.03
Thursday	31-Oct-13	8	A LecD2 gr01	translation 2	Lec	10:00	11:00	Stark, Michael	Tower Baxter 1.36
Friday	01-Nov-13	8	A LecE2 gr01	translation 3	Lec	16:00	17:00	Stark, Michael	Carnelley Small LT
Monday	04-Nov-13	9	A LecA3 gr01	RNA-mediated regulation 1 and 2	Lec	09:00	11:00	Rocha, Sonia	Old Med Schl 2.03
Tuesday	05-Nov-13	9	A LecC3 gr01	Chromatin & Epigenetics 1	Lec	16:00	17:00	Owen-Hughes, Thomas	Old Med Schl 2.03
Thursday	07-Nov-13	9	A LecD3 gr01	Chromatin & Epigenetics 2	Lec	10:00	11:00	Owen-Hughes, Thomas	Tower Baxter 1.36
Friday	08-Nov-13	9	A LecE3 gr01	Chromatin & Epigenetics 3	Lec	11:00	12:00	Owen-Hughes, Thomas	Carnelley Small LT
Monday	11-Nov-13	10	A LecA4 gr01	DNA Replication 1 and 2	Lec	09:00	11:00	Russell, Jackie	Old Med Schl 2.03
Monday	11-Nov-13	10	A LecE4 gr01	Data Interpretation assessment	Workshop	14:00	15:00	Stark, Michael	Tower Basement ITS C
Monday	11-Nov-13	10	A LecB4 gr01	Chromosome Segregation	Lec	15:00	16:00	Tanaka, Tomo	Old Med Schl 2.03
Tuesday	12-Nov-13	10	A LecC4 gr01	Apoptosis	Lec	16:00	17:00	Gartner, Anton	Old Med Schl 2.03
Thursday	14-Nov-13	10	A LecD4 gr01	Recombination	Lec	10:00	11:00	Gartner, Anton	Tower Baxter 1.36
Friday	15-Nov-13	10	A LecF gr01	Recombination	Lec	09:00	10:00	Gartner, Anton	Old Med Schl 2.03
Monday	18-Nov-13	11	A LecA5 gr01	Molecular Medicine 1	Lec	09:00	10:00	McLean, Irwin	Old Med Schl 2.03
Monday	18-Nov-13	11	A LecB5 gr01	Molecular Medicine 2	Lec	10:00	11:00	McLean, Irwin	Old Med Schl 2.03
Monday	18-Nov-13	11	A Lec G gr01	DNA repair	Lec	13:00	14:00	Rouse, John	Old Med Schl 2.03
Monday	18-Nov-13	11	A LecE4 gr01	Numeracy assessment	Workshop	14:00	15:00	Stark, Michael	Tower Basement ITS C
Tuesday	19-Nov-13	11	A LecC5 gr01	Molecular Biology of Cancer 1	Lec	16:00	17:00	Rocha, Sonia	Old Med Schl 2.03
Thursday	21-Nov-13	11	A LecD5 gr01	Molecular Biology of Cancer 2	Lec	10:00	11:00	Gartner, Anton	Tower Baxter 1.36

Life Sciences Study Guide Level 3 Biological Sciences 2013/14

BS31004 Biochemistry and Cell Biology

Day	Date	Week	Activity	Title		Start	Finish	Duration	Staff	V
Tuesday	22-Oct-13	7	A LecA1 gr01	PROTEINS IN ACTION	Lec	09:00	10:00	01:00	Norman, David	D
Tuesday	22-Oct-13	7	A LecB1 gr01	PROTEINS IN ACTION	Lec	10:00	11:00	01:00	tbc	M
Wednesday	23-Oct-13	7	A LecC1 gr01	PROTEINS IN ACTION	Lec	09:00	10:00	01:00	van Aalten, Dan	M
Thursday	24-Oct-13	7	A LecE gr01	PROTEINS IN ACTION	Lec	09:00	10:00	01:00	tbc	D
Thursday	24-Oct-13	7	A WorkshopA1	MEDIA WORKSHOP	Workshop	14:00	18:00	04:00	Booth, David	T
Tuesday	29-Oct-13	8	A LecA2 gr01	BIOENERGETICS & PHOTOSYNTHESIS	Lec	09:00	10:00	01:00	Sargent, Frank	D
Tuesday	29-Oct-13	8	A LecB2 gr01	BIOENERGETICS & PHOTOSYNTHESIS	Lec	10:00	11:00	01:00	Sargent, Frank	M
Wednesday	30-Oct-13	8	A LecC2 gr01	BIOENERGETICS & PHOTOSYNTHESIS	Lec	09:00	10:00	01:00	Sargent, Frank	M
Thursday	31-Oct-13	8	A WrkshpB	MEDIA WORKSHOP	Workshop	16:00	18:00	02:00	Booth, David	D
Friday	01-Nov-13	8	A LecF gr01	BIOENERGETICS & PHOTOSYNTHESIS	Lec	12:00	13:00	01:00	Sargent, Frank	D
Monday	04-Nov-13	9	A WrkshpC	MEDIA WORKSHOP	Workshop	16:00	17:00	01:00	Booth, David	D
Tuesday	05-Nov-13	9	A LecA3 gr01	CELL SHAPE & MOVEMENT	Lec	09:00	10:00	01:00	Prescott, Alan	D
Tuesday	05-Nov-13	9	A LecB3 gr01	CELL SHAPE & MOVEMENT	Lec	10:00	11:00	01:00	Prescott, Alan	M
Wednesday	06-Nov-13	9	A LecC3 gr01	CELL SHAPE & MOVEMENT	Lec	09:00	10:00	01:00	Prescott, Alan	M
Thursday	07-Nov-13	9	A LecG gr01	CELL SHAPE & MOVEMENT	Lec	09:00	10:00	01:00	Prescott, Alan	D
Tuesday	12-Nov-13	10	A LecA4 gr01	CELL ADHESION & CELL SIGNALLING	Lec	09:00	10:00	01:00	West, Michele	D
Tuesday	12-Nov-13	10	A LecB4 gr01	CELL ADHESION & CELL SIGNALLING	Lec	10:00	11:00	01:00	West, Michele	M
Tuesday	12-Nov-13	10	A LecH gr01	CELL ADHESION & CELL SIGNALLING	Lec	11:00	12:00	01:00	Nathke, Inke	D
Tuesday	12-Nov-13	10	A WrkshpD	MEDIA WORKSHOP	Workshop	13:00	15:00	02:00	Booth, David	O
Wednesday	13-Nov-13	10	A LecC4 gr01	CELL ADHESION & CELL SIGNALLING	Lec	09:00	10:00	01:00	Dale, Kim	M
Tuesday	19-Nov-13	11	A LecA5 gr01	SYSTEMS & SYNTHETIC BIOLOGY	Lec	09:00	10:00	01:00	Weijer, Cornelis	D
Tuesday	19-Nov-13	11	A LecB5 gr01	SYSTEMS & SYNTHETIC BIOLOGY	Lec	10:00	11:00	01:00	Sargent, Frank	M
Wednesday	20-Nov-13	11	A LecC5 gr01	SYSTEMS & SYNTHETIC BIOLOGY	Lec	09:00	10:00	01:00	Sargent, Frank	M
Friday	22-Nov-13	11	A LecD1 gr01	SYSTEMS & SYNTHETIC BIOLOGY	Lec	09:00	10:00	01:00	Weijer, Cornelis	D
Friday	22-Nov-13	11	A PresentationA	Media presentations	Presentation	13:00	15:00	02:00	Prescott, Alan,Booth, David	D