

School of Biology

Biology (BL) Modules

BL1101 Biology 1				
SCOTCAT Credits:	20	SCQF Level 7	Semester:	1
Planned timetable:	10.00 am			
<p>This module is an introduction to molecular and cellular biology. It covers cell diversity and the origins of life, cellular structures and fundamental processes. The central dogma of molecular biology is investigated through the examination of the structure and function of DNA, RNA and proteins, and how this knowledge led to modern developments in biotechnology. The final section of the module gives an introduction into molecular and population genetics with an emphasis on the process of evolution. Throughout the module the lecture material is complemented by extensive practical classes where biological laboratory techniques are taught and practiced through, for example, microscopy, DNA isolation, dissection and thin layer chromatography.</p>				
Programme module type:	Compulsory for all Biology Degree Programmes			
Anti-requisite(s):	BL1001, BL1002, BL1201			
Required for:	BL2101, BL2102, BL2104, BL2105, BL2106			
Learning and teaching methods and delivery:	Weekly contact: 5 lectures and 1 x 3-hour laboratory.			
	Scheduled learning: 88 hours		Guided independent study: 112 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 65%, Practical Examinations = 0%, Coursework = 35%			
	As used by St Andrews: Coursework = 50%, Written Examinations = 50%			
Module Co-ordinator:	Dr Jane Wishart			
Lecturer(s)/Tutor(s):	Dr D Barker, Dr W Heitler, Dr G Middleton, Dr M Milner, Dr C Peddie, Dr R Ramsay, Dr M Ritchie, Dr R Russell, Prof M Ryan, Dr J Sleeman, Dr D Jackson, Ms L Sibbett, Dr S Unkles, Dr S Young			

Biology - 1000 & 2000 Level 2012/13 - August 2012

BL1102 Biology 2			
SCOTCAT Credits:	20	SCQF Level 7	Semester: 2
Planned timetable:	10.00 am		
<p>This module provides an introduction to the diversity of life on Earth and will address key elements of organismal and ecological aspects of life. The module is divided into several sections beginning with the classification of life and an introduction to the kingdoms Monera, Fungi and Protista. Photosynthesis, respiration and the evolution and diversity of plants will be studied. Students will then look at the diversity of animals in the sea and the movement of some groups onto land. The module will also provide an introduction to animal behaviour and developmental biology, before finishing off by introducing ecology and the various factors promoting and threatening biodiversity. Throughout the module the lecture material is complemented by extensive practical classes introducing a variety of fieldwork and laboratory techniques.</p>			
Programme module type:	Compulsory for all Biology Degree Programmes		
Anti-requisite(s):	BL1001, BL1002, BL1201		
Required for:	BL2101, BL2102, BL2104, BL2105, BL2106		
Learning and teaching methods and delivery:	Weekly contact: 5 lectures and 1 x 3-hour laboratory		
	Scheduled learning: 80 hours	Guided independent study: 120 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 50%, Practical Examinations = 7%, Coursework = 43%		
	As used by St Andrews: Coursework = 50%, Written Examinations = 50%		
Module Co-ordinator:	Dr I Matthews		
Lecturer(s)/Tutor(s):	Dr D Ferrier, Dr W Heitler, Dr I Matthews, Dr M Milner, Dr C Peddie, Dr G Miles		

Biology - 1000 & 2000 Level 2012/13 - August 2012

BL2101 Cell Structure and Function			
SCOTCAT Credits:	30	SCQF Level 8	Semester: 1
Planned timetable:	9.00 am		
<p>This is an introductory module covering general aspects of animal cell structure and associated physiology. The module starts with a general overview of the regulation of the cell cycle, the roles of protein complexes essential to cell shape and adhesion and the homeostatic role of ion pumps, transporters and channels in the maintenance of solute compositions in both the intra- and extra-cellular fluid compartments. The module continues with detailed structure-function relationships within cells from three major tissues -</p> <p>i) nerve cells and the mechanisms of generation and propagation of the action potential, ii) skeletal, cardiac and smooth muscle cells and mechanisms controlling contraction and finally iii) blood cells and O₂ transport, immune response, coagulation and cell signaling pathways.</p>			
Programme module type:	<p>Compulsory for Biochemistry, Biomolecular Science, Cell Biology, Molecular Biology, Neuroscience.</p> <p>Optional for all other Biology Degree programmes.</p>		
Pre-requisite(s):	Students should normally have passed or been granted exemption from BL1101 and BL1102.		
Required for:	BL3301, BL3303, BL3311, BL3312, BL3313		
Learning and teaching methods and delivery:	Weekly contact: 5 lectures and 1 practical. In addition all students studying in second year Biology are required to attend a 1-hour tutorial per week PLUS 1 lecture per week and a fortnightly computer based practical (optional times for these classes will be available).		
	Scheduled learning: 90 hours	Guided independent study: 210 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%		
	As used by St Andrews: Coursework = 50%, Written Examinations = 50%		
Module Co-ordinator:	Ms L Sibbett		
Lecturer(s)/Tutor(s):	Prof F Gunn-Moore, Dr Prescott, Prof Ian Johnston, Dr Ramsay, Dr Sleeman, Dr Heitler, Dr Middleton, Ms Sibbett.		

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BL2102 Zoology			
SCOTCAT Credits:	30	SCQF Level 8	Semester: 1
Planned timetable:	11.00 am		
<p>Zoology is the study of animals, ranging from the simplest types of multicellular organisms such as sponges and jellyfish, through to humankind itself. The module surveys the animal kingdom, describing the key groups and the defining characteristics of their body plans and lifestyles, while putting this in an evolutionary context to reveal the patterns and trends in the kingdom as a whole. Special topics that are of fundamental importance to animals, such as animal communication, and the mechanisms of locomotion on land and in the sea and air, are considered in more detail. An extensive series of practical exercises reinforces and complements the lecture component of this module.</p>			
Programme module type:	<p>Compulsory for Behavioural Biology, Biology and Geology, Ecology and Conservation, Environmental Biology and Geography, Evolutionary Biology, Marine Biology, Zoology.</p> <p>Optional for all other Biology Degree Programmes</p>		
Pre-requisite(s):	Students should normally have passed or been granted exemption BL1101 and BL1102.		
Required for:	BL3318		
Learning and teaching methods and delivery:	Weekly contact: 5 lectures and 1 practical. In addition all students studying in second year Biology are required to attend a 1-hour tutorial per week PLUS 1 lecture per week and a fortnightly computer based practical (optional times for these classes will be available).		
	Scheduled learning: 87 hours	Guided independent study: 213 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 50%, Practical Examinations = 30%, Coursework = 20%		
	As used by St Andrews: Coursework = 50%, Written Examinations = 50%		
Module Co-ordinator:	Dr W Heitler		
Lecturer(s)/Tutor(s):	Dr Heitler, Dr Val Smith, Dr C Peddie, Dr Wishart, Dr Ferrier, Dr Matthews, Dr Paxton, Dr Boogert, Dr Janik, Dr Graves, Prof Slater.		

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BL2104 Biochemistry and Molecular Biology				
SCOTCAT Credits:	30	SCQF Level 8	Semester:	2
Planned timetable:	9.00 am			
<p>This module builds on BL1201 Molecular Biology. The module will further develop the understanding and application of techniques, skills and concepts, which are integral to the revolution that has occurred in the biological sciences in recent years. The module is essential underpinning for all branches of modern biology and biochemistry. The lectures include coursework on biological molecular architecture, cellular architecture, enzymes & metabolism, genomics and conclude with an introduction to the molecular basis of infection and immunity. The laboratory element will develop practical skills and the use of bioinformatics resources.</p>				
Programme module type:	Compulsory for Biochemistry, Biomolecular Science, Cell Biology, Molecular Biology. Optional for all other Biology Degree Programmes.			
Pre-requisite(s):	Students should normally have passed or been granted exemption BL1101 and BL1102			
Required for:	BL3301, BL3302, BL3311			
Learning and teaching methods and delivery:	Weekly contact: 5 lectures and 1 practical. In addition all students studying in second year Biology are required to attend a 1-hour tutorial per week PLUS 1 lecture per week and a fortnightly computer based practical (optional times for these classes will be available).			
	Scheduled learning: 88 hours		Guided independent study: 212 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 70%, Practical Examinations = 0%, Coursework = 30%			
	As used by St Andrews: Coursework = 50%, Written Examinations = 50%			
Module Co-ordinator:	Dr J Ingledew			
Lecturer(s)/Tutor(s):	Dr Coote, Prof F Gunn-Moore, Dr J Ingledew, Dr MacNeil, Prof Naismith, Dr Ramsay, Prof Randall, Dr Russell, Prof Ryan, Prof White, Ms Sibbett.			

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BL2105 Ecology and Evolution			
SCOTCAT Credits:	30	SCQF Level 8	Semester: 2
Planned timetable:	11.00 am		
<p>Ecology and Evolution are central to our understanding of life on Earth and the relationships between all organisms and their biotic and abiotic environment. The principles of Ecology and Evolution have determined the variety and distribution of all organisms and will determine their future responses to global change. This module will introduce students to principles and patterns of Ecology, ranging from the global (for example, patterns of energy flow through ecosystems and the biogeography of organisms and communities) to the individual (competition between and within species) and the history and processes of Evolutionary Biology (Darwin, natural selection, population genetics, the evolution of sex and speciation).</p>			
Programme module type:	<p>Compulsory for Behavioural Biology, Biology and Geology, Ecology and Conservation, Environmental Biology and Geography, Evolutionary Biology, Marine Biology.</p> <p>Optional for all other Biology degree programmes</p>		
Pre-requisite(s):	Students should normally have passed or been granted exemption BL1101 and BL1102.		
Required for:	BL3309, BL3318, BL4301: (BL2105, BL3308, BL3318 or equivalent preferred but not essential)		
Learning and teaching methods and delivery:	<p>Weekly contact: 5 lectures and 1 practical. In addition all students studying in second year Biology are required to attend a 1-hour tutorial per week PLUS 1 lecture per week and a fortnightly computer based practical (optional times for these classes will be available).</p>		
	Scheduled learning: 86 hours	Guided independent study: 214 hours	
Assessment pattern:	<p>As defined by QAA: Written Examinations = 50%, Practical Examinations = 0%, Coursework = 50%</p>		
	<p>As used by St Andrews: Coursework = 50%, Written Examinations = 50%</p>		
Module Co-ordinator:	Prof M Ritchie		
Lecturer(s)/Tutor(s):	Dr D Barker, Prof A Brierley, Dr M Dornelas, Dr J Graves, Prof P Hammond, Prof T Meagher, Dr A Ojanguren, Prof M Ritchie, Dr D Shuker, Dr C Smith.		

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BL2106 Comparative Physiology			
SCOTCAT Credits:	30	SCQF Level 8	Semester: 2
Planned timetable:	12.00 noon		
<p>This module covers the principles of physiological adaptation in a range of animals, including examples from all major taxa and from all habitats. Initial comparisons relating to scaling and design of animals will be followed by more specific units on: (A) Comparative principles of ionic and osmotic exchanges; water balance in aquatic and land animals, adaptations at skin, kidney, and respiratory surfaces. (B) Respiratory systems in water and on land, and associated circulatory mechanisms. (C) Principles of temperature balance; ectotherms and endotherms. (D) Feeding and digestive systems; food collection, ingestion, and absorption at different trophic levels; and waste disposal. (E) Sensory systems in different environments (especially visual, olfactory, auditory, and special senses). (F) Control systems using hormones and pheromones and (G) the immune system in a range of animals.</p>			
Programme module type:	Compulsory for Zoology Optional for all other Biology degree programmes		
Pre-requisite(s):	Students should normally have passed or been granted exemption from BL1101 and BL1102.		
Learning and teaching methods and delivery:	Weekly contact: 5 lectures and 1 practical. In addition all students studying in second year Biology are required to attend a 1-hour tutorial per week PLUS 1 lecture per week and a fortnightly computer based practical (optional times for these classes will be available).		
	Scheduled learning: 92 hours	Guided independent study: 208 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 63%, Practical Examinations = 0%, Coursework = 37%		
	As used by St Andrews: Coursework = 50%, Written Examinations = 50%		
Module Co-ordinator:	Dr G Prescott		
Lecturer(s)/Tutor(s):	Dr G Prescott, Dr W Heitler, Dr C Peddie, Ms Sibbett, Dr Janik, Dr Ballantyne, Prof Willmer, Dr Hooker, Prof Sillar, Prof Todd, Dr V Smith.		