School of Biology

Important Degree Information:

B.Sc./M.A. Honours
The general requirements are 480 credits over a period of normally 4 years(and not more than 5 years) or part-time equivalent; the final two years being an approved honours programme of 240 credits, of which 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 (H) levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a B.Sc.or M.A. degree.

B.Sc./M.A. Honours with Integrated Year Abroad
The general requirements are 540 credits over a period of normally 5 years (and not more than 6 years) or part-time equivalent; the final three years being an approved honours programme of 300 credits, of which 60 credits are gained during the integrated year abroad, 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 (H) levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a B.Sc. or M.A. degree.

Other Information: In the case of students who spend part of the Honours Programme abroad on a recognised Exchange Scheme, the Programme Requirements will be amended to take into account courses taken while abroad.With the permission of the Director of Teaching up to 20 credits per programme may be taken in a module outwith the specified modules in the above Programmes. Entry to the Honours programme is at the discretion of the Director of Teaching, but is automatically granted for students gaining at least grade 11 in two of the prerequisite second year modules. Those who, at their first attempt, earn a minimum aggregate of 35 grade points from their second year modules will also be considered for entry.Where there are choices between modules in the programmes that follow, some options may have pre-requisites so that choices may be limited by the Pre-Honours modules taken.

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Animal Biology**	**Single Honours Animal Biology Degree:** **Level 1:** 45 – 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees; BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2001, BL2007; at least one of BL2002 or BL2004 or BL2005 **Level 3:** 120 - 125 credits comprising BL3001 or BL3021; BL3002 or BL3022; BL3003 or BL3023; BL3004; BL3025; BL3008 or BL3027. BL3000 is also required if BL3021 is taken, and both of these are required if BL3022 is taken. **Level 4:** 120 credits comprising BL4104 or BL4107 or BL4122; BL4108 or BL4121; BL4109 or BL4111 or BL4125; BL4200; BL4300
(B.Sc. Honours): **Behavioural & Environmental Biology**	**Single Honours Behavioural & Environmental Biology B.Sc. Degree:** **Level 1:** 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees; BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2001; BL2007; BL2004 or BL2005 **Level 3:** 125 credits comprising BL3000; BL3021; BL3022; BL3023; BL3004 or BL3024; BL3025; BL3027 **Level 4:** 120 credits comprising BL4122 or BL4124; BL4121 or BL4126; BL4111 or BL4123 or BL4125; BL4200; BL4300. Students may take no more than 2 modules from the range BL4121, BL4122, BL4123

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Biochemistry**	**Single Honours Biochemistry Degree:** **Level 1:** 45 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees **Level 2:** 65 credits comprising BL2007; BL2201; at least one from BL2203, BL2002, BL2006 **Level 3:** 120 credits comprising BL3001; BL3002; BL3003; BL3004 or BL3102; BL3005 or BL3007; BL3006 **Level 4:** 120 credits comprising BL4101; BL4102; BL4103; BL4200; BL4300
(B.Sc. Honours): **Biology**	**Single Honours Biology Degree:** **Level 1:** 45 - 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees; BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2007 and any other two Biology (BL) second year modules. **Level 3:** 120 - 125 credits comprising a free choice of modules as approved by the Degree Controller & Director of Teaching. BL3000 is required if BL3021 is taken, and both are required if BL3022 is taken. **Level 4:** 120 credits comprising a free choice of modules as approved by the Degree Controller & Director of Teaching, but including BL4200 and BL4300. No more than 2 from BL4121, BL4122 and BL4123
(B.Sc. Honours): **Biology with French^ or German^ or Spanish^** ^also available as 'with Integrated Year Abroad Degrees'	**Biology element of Major Degree with French or German:** **Level 1:** 45 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. **Level 2:** 65 credits comprising BL2007 and any other two Biology (BL) second year modules **Levels 3 & 4:** 180 credits. Typically 80 credits at level 3 and 100 credits at level 4. BL4200 and a further 135 credits taken from the groups defined for a Single Honours Degree subject to the permission of the Director of Teaching. If BL3021 or any modules in the range BL4121 to B4126 are chosen, then BL3000 is normally also required.

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Biomolecular Science**	**Single Honours Biomolecular Science Degree:** **Level 1:** 45 credits comprising Biology element:Passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. Chemistry element: 20 – 40 credits comprising pass or bypass for CH1001, pass in CH1004 **Level 2:** 125 credits comprising BL2007 and passes at 11 or better in BL2201, BL2203, CH2101 and CH2103. **Level 3:** 120 credits comprising Biology Element: BL3001; BL3002; BL3009; BL3010 and modules as listed in the entry for Chemistry Chemistry Element: CH3611, CH3612, CH3613, CH3621, CH3432, CH4613 **Level 4 (H):** 40 - 100 credits comprising Biology Element: TWO of BL4101, BL4102, BL4103; plus (BL4200 and BL4300) if CH4442 is NOT taken. If BL4200 is taken CH5614 and ONE of (CH5513, CH5612, CH5411) may be taken as an alternative to BL4300 Chemistry Element: 40 - 80 credits CH4442 (if BL4200 is NOT taken); TWO from (CH4611, CH4511, CH4612); CH5614 and ONE of (CH5513, CH5612, CH5411). If BL4200 is taken BL4300 may be taken as an alternative to CH5614 and ONE of (CH5513, CH5612, CH5411). If CH4442 is taken then BL4300 maybe taken as an alternative to ONE of (CH5513, CH5612, CH5411). Chemistry: Direct entry into Level 2000 is possible, in which case credit of 120 credits at level 1000 is given on the basis of school examinations. In the case of students who spend part of the Honours Programme abroad on a recognised Exchange Scheme, the Programme Requirements will be amended to take into account courses taken while abroad.
(B.Sc. Honours): **Cell Biology & Pathology**	**Single Honours Cell Biology & Pathology Degree:** **Level 1:** 45 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. **Level 2:** 95 credits comprising BL2007; BL2203; BL2002; BL2006 **Level 3:** 120 credits comprising BL3001; BL3002; BL3003; BL3004 or BL3102; BL3005 or BL3007; BL3006 or BL3008 **Level 4:** 120 credits comprising BL4104; BL4108; BL4103 or BL4109 or BL4112; BL4200; BL4300
(B.Sc. Honours): **Environmental Biology**	**Single Honours Environmental Biology Degree:** **Level 1:** 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees; BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2007; BL2001 or BL2003; BL2004 or BL2005 **Level 3:** 125 credits comprising BL3000; BL3021; BL3022; BL3023; BL3024; BL3025; BL3027 **Level 4:** 120 credits comprising BL4124; BL4121 or BL4126; BL4123 or BL4125; BL4200; BL4300

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Environmental Biology & Geography**	**Environmental Biology element of Geography Joint Degree:** **Level 1:** 45 credits comprising passes in BL1001 and BL1003. BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2007; BL2001 or BL2003; BL2004 or BL2005 **Level 3:** 65 credits comprising BL3000; and any three of BL3021 to BL3027 **Level 4:** 55 - 60 credits comprising i) any two of BL4111, BL4121 to BL4127; and BL4300 OR ii) three from BL4111, BL4121 to BL4127
(B.Sc. Honours): **Environmental Biology & Geoscience**	**Environmental Biology of Geoscience Joint Degree:** **Level 1:** 45 credits comprising a pass in BL1001 and BL1003. BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2007; BL2001 or BL2003; BL2004 or BL2005 **Level 3:** 65 credits comprising BL3000; BL3021; BL3022; BL3023 **Level 4:** 60 credits comprising THREE from BL4111, BL4121 to BL4127
(B.Sc. Honours): **Evolutionary & Environmental Biology**	**Single Honours Evolutionary & Environmental Biology Degree:** **Level 1:** 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees; BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2007; BL2001 or BL2003; BL2005 **Level 3:** 125 credits comprising BL3000; BL3021; BL3002 or BL3022; BL3023; BL3024; BL3025; BL3027 or BL3008 **Level 4:** 120 credits comprising BL4124; BL4121 or BL4126; BL4103 (if BL3002 was taken) or BL4109 or BL4125; BL4200; BL4300
(B.Sc. Honours): **Human Biology**	**Single Honours Human Biology Degree:** **Level 1:** 65 credits comprising Passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. BL1004 is additionally required for the Human Biology Degree. **Level 2:** 65 credits comprising BL2002; BL2006; BL2007 **Level 3:** 120 - 125 credits comprising BL3001 or BL3021; BL3002; BL3003 or BL3023; BL3004 or BL3102 or BL3024; BL3005 or BL3007 or BL3025; BL3008. BL3000 is also required if BL3021 is taken. **Level 4:** 120 credits comprising BL4104 or BL4107; BL4108; BL4109 or BL4110 or BL4112; BL4200; BL4300
(B.Sc. Honours): **Marine & Environmental Biology**	**Single Honours Marine & Environmental Biology Degree:** **Level 1:** 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees; BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2007; BL2001 or BL2003; BL2004 or BL2005. **Level 3:** 125 credits comprising BL3000; BL3021; BL3022; BL3023; BL3024; BL3025; BL3027 **Level 4:** 120 credits comprising BL4121; BL4122; BL4111 or BL4123; BL4200; BL4300

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Molecular Biology**	**Single Honours Molecular Biology** **Level 1:** 45 credits comprising passes in BL1001; BL1003; BL1201 **Level 2:** 65 credits comprising BL2007; BL2201;and BL2203 **Level 3:** 125 credits comprising BL3001; BL3002; BL3003; BL3004; BL3005; BL3008 **Level 4:** 120 credits comprising BL4101 or BL4104; BL4102; BL4103; BL4200; BL4300
(B.Sc. Honours): **Neuroscience**	**Biology element of Single Honours Neuroscience Degree (Psychology requirements listed under School of Psychology entry):** **Level 1:** 45 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. **Level 2:** 65 credits comprising BL2007; BL2002; BL2203 or BL2006 **Level 3:** 120 credits comprising BL3001; BL3002; BL3003; BL3004; BL3007; BL3008 **Level 4:** 120 credits comprising BL4107; and either BL4200 or PS4050 plus PS4005. Also modules as listed under the School of Psychology entry for this degree
(B.Sc. Honours): **Physiology**	**Single Honours Physiology Degree:** **Level 1:** 45 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. **Level 2:** 65 credits comprising BL2007; BL2002; BL2006 **Level 3:** 120 credits comprising BL3001; BL3002; BL3003; BL3004; BL3007; BL3008 **Level 4:** 120 credits comprising BL4107; BL4108; BL4109 or BL4110 or BL4112; BL4200; BL4300
(B.Sc. Honours): **Plant & Environmental Biology**	**Single Honours Plant & Environmental Biology Degree:** **Level 1:** 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees; BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2003; BL2007; BL2004 or BL2005 **Level 3:** 125 credits comprising BL3000; BL3021; BL3022; BL3023; BL3024; BL3025; BL3027; **Level 4:** 120 credits comprising BL4124; BL4123 or BL4125; BL4126; BL4200; BL4300
(B.Sc. Honours): **Zoology**	**Single Honours Zoology Degree:** **Level 1:** 65 credits comprising passes in BL1001, BL1003 and BL1201 are normally required for entry to Single Honours Degrees. BL1002 is also required for programmes including Environmental Biology. **Level 2:** 65 credits comprising BL2001; BL2007; BL2002 or BL2004 or BL2005 **Level 3:** 120 - 125 credits comprising BL3001 or BL3021; BL3002 or BL3022; BL3003 or BL3023; BL3004; BL3025; BL3008 or BL3027. BL3000 is also required if BL3021 is taken, and both of these are required if BL3022 is taken. **Level 4:** 120 credits comprising BL4104 or BL4107 or BL4122; BL4108 or BL4121; BL4109 or BL4111 or BL4125; BL4200; BL4300

Modules

Normally the prerequisite for each of the following Honours modules is entry to the Honours Programme(s) for which they are specified, as well as any additional specific prerequisite(s) given.

General degree and non-graduating students wishing to enter 3000 or 4000 level modules must consult with the relevant Honours Adviser within the School before making their selection.

Biology (BL) Modules

BL3000 Field Course

Credits: 5.0 Semester: summer vacation

Co-requisite: BL3021

Description: This module involves field-based exercises in a range of aquatic and/or terrestrial habitats. Students will examine and measure biodiversity, ecophysiological adaptation, and community structure, with both plant and animal material. Class exercises are used to develop good sampling techniques and to generate and analyse large data sets. Students also work in small project groups to develop individual skills in experimental design, practical manipulations, time-management and personal initiative, and in verbal/written presentation of project results.

Class Hour: One week residential course

Assessment: Continuous Assessment =100%

BL3001 Protein Function

Credits: 20.0 Semester: 1

Description: This module builds on the material covered in BL1201 to provide an understanding of more advanced aspects of protein structure and enzymology. The module begins by considering protein conformation and the mechanisms of protein folding, both intrinsic and under the influence of natural catalysts. The behaviour of microtubules is used to illustrate the range of properties which emerge as a consequence of the assembly of proteins into large complexes while a study of the molecular and submolecular basis of protein function focuses on the mechanisms of proteolytic enzymes. This in turn leads into the phenomena of allosteric regulation, signalling cascades and transporter systems and is followed by a consideration of enzymes as pharmacological target design. The module includes an introduction to computer techniques for the display and examination of protein structure and to Bioinformatics for mining the information in protein and nucleic acid sequence databases. There is also an introduction to the use of electronic information resources. The associated laboratory course introduces the fundamentals of safe laboratory practice. It provides a grounding in the basic laboratory techniques, including associated calculations, as well as those associated with the study of proteins and enzymes.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3002 Molecular Genetics & Immunology

Credits: 20.0 Semester: 1

Description: This module covers topics at the interface of cell biology, genetics and molecular disease and provides a link to other modules dealing with gene expression, cell structure, developmental biology and cellular pathology. It first considers the composition of genomes and the major types of repeat sequences. The structures and properties of DNA are then briefly examined. Further topics include: genetic activity in relation to changes in chromatin structure and the assembly of nucleoprotein complexes during gene transcription, RNA processing, ribosome biogenesis and translation of messenger RNA. Finally, mechanisms for the nucleocytoplasmic transport of RNA and protein molecules are presented. The immunology component begins with an overview of the scope of immunity, the derivation of immunological memory, the nature of antigenicity and the role of the complement system. It then examines the structure, function and genetics of components of major importance, such as the immunoglobulins, Class I and II major histocompatibility complex proteins and T-cell receptors. The production and importance of monoclonal antibodies and recent developments in the area of applied immunology are considered.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3003 Membranes & Cell Communication

Credits: 20.0 Semester: 1

Description: This module deals with the structural and functional organisation of biological membranes. The dynamic molecular components of biological membranes are studied by investigating the mechanisms involved in the control of membrane fluidity, the measurement of membrane fluidity and the biogenesis of new molecular components of the membrane. The central role that biological membranes play in the regulation of the movement of molecules between different extracellular, intracellular and transcellular compartments is also considered. The process of molecular transport is studied at both a theoretical and practical level. The interaction between the structural and functional organisation of the cell membrane is highlighted by studying the specialisation seen in the major transporting ephithelial tissues. Topics covered include: (i) structural and kinetic analysis of ligand-receptor interactions; (ii) GTP-binding proteins and the generation of intracellular second messengers: cyclic AMP, cyclic GMP, diacyl glycerol and inositol triphosphate; (iii) the activation of receptor and intracellular protein kinases: serine/threonine and tyrosine kinases; (iv) de-sensitisation of signal responses and receptor 'cross-talk'; (v) direct and indirect activation of plasma membrane ion channels; (vi) nuclear receptors and the regulation of gene expression. The practical component includes experiments to illustrate methods used to elucidate signalling pathways as well as providing training in laboratory and transferable skills. Continuous assessment of this component will contribute 25% of the credit for the module.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3004 Neuroscience

Credits: 20.0 Semester: 2

Description: This module covers biochemical, cellular and behavioural aspects of the nervous system. It starts with the basic biochemistry of neural membrane proteins such as receptors and channels, and considers the cellular mechanisms of action potential generation and propagation, and synaptic transmission. The physiology of sensory perception is illustrated by examining the visual system, while motor control is considered in terms of vertebrate locomotion. Selected aspects of learning and memory processes are examined from simple invertebrate systems through to the higher primates. Students are given extensive hands-on experience of computer simulation as a learning tool in this course. The associated practical work illustrates the lecture course through experiments on the nerve impulse, sensory processes, and the biochemistry of synaptic transmission.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3005 Molecular Virology

Credits: 20.0 Semester: 2

Description: Viral diseases remain a major public health threat, both in developed and developing countries. The world wide AIDS pandemic is but one example of a newly emerged virus disease; other potential threats come from EBOLA and Lassa Fever viruses. Older more established human viruses such as influenza, measles, hepatitis and the common cold still cause major health problems. Furthermore, prions, which are unconventional infectious agents that cause CJD, BSE and scrapie, are of major concern in both agricultural industries and human health. In this module, the harm and actual/potential benefits of viruses to man will be discussed. Different replication strategies employed by viruses will be explored and used to illustrate how viruses are classified. The module will also investigate the molecular basis of selected virus-induced diseases. For example, the abilities of specific viruses to establish persistent/latent infections, and to induce cancer, will be illustrated. The ways in which the immune response controls virus infections will be described, as will mechanisms that selected viruses have evolved to circumvent these immune responses.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

Biology – Honours

BL3006 Bioenergetics

Credits: 20.0 Semester: 2

Prerequisite: Either BL2201 or BL3001

Description: Energy transduction (Bioenergetics) is at the centre of all life, and involves the conversion of one form of energy into another by a biochemical process. The bioenergetics module describes the biological systems for harvesting light energy and conserving chemical energy from food and for the conversion of redox energy into the chemical energy in pyrophosphate bonds of ATP. The module also considers the energetics of tranport and motor processes and the effects on the cell of the failure of energy generation. Chemiosmotic theory and principles are considered in detail as are the structure and funtion of electron and proton transfer systems of respiratory and photosynthetic systems. Practical classes will introduce the student to the methods used in this field study.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 hours including up to 35 hours of lectures and seminars, and practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3007 Pharmacology

Credits: 20.0 Semester: 2

Description: This module assumes that students are familiar with the material covered in BL2002 and BL2006. The basic principles of pharmacology will be covered, including evidence to support the modern concept that drugs act via specific receptors present on target tissues and an explanation of our present understanding of laws governing drug-receptor interactions. The concept of agonists, competitive and non-competitive antagonists and the interactions between such classes of drugs will be discussed. The effects of drugs upon the peripheral and central nervous systems and the cardio-vascular system will be covered. How these drugs can be used to understand the function of these systems and to correct their malfunctioning in various disease states will be explained.

The practical component will cover the principles of drug action and receptor theory and illustrate the use of bioassays in pharmacological investigations. The practicals aim to help students build a working knowledge of drug names and actions as well as pharmacological concepts. Continuous assessment of this component will contribute 25% of the credit for the module.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3008 Human Reproduction & Development

Credits: 20.0 Semester: 2

Description: This multidisciplinary module uses the reproductive system as an exemplar to show how different methodological approaches can provide an integrated understanding of human reproduction. The module will develop concepts which draw upon recent advances in developmental biology, physiological control mechanisms mediated by the endocrine and nervous systems, pharmacology, immunology and anatomy including histology and medical imaging. The human reproductive system provides examples of simple and complex feedback control mechanisms, the role of environmental factors, applied endocrinology, pathology and ethical issues.

The practical element will build upon the information base and concepts developed in lectures and tutorials and will cover a number of practical approaches. Continuous assessment of this component will contribute 25% of the credit for the module.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3009 Neurochemistry

Credits: 10.0 Semester: 2

Prerequisite: Entry to the BSc programme in Biomolecular Science or Biochemistry - Chemistry

Anti-requisites: BL3004

Description: This module uses computer-based, self-learning programmes, lectures, workshops and practical work to explore the biochemistry of neural communication. Topics covered include: the various essential proteins (e.g., transporters, pumps, and channels) found in the neuronal plasma membrane; signal transduction mechanisms; the molecular events involved in neurotransmitter release; the biosynthesis of various classes of neurotransmitters. Selected aspects of neurochemical disorders will be presented, including mechanisms of neurodegeneration, molecular aspects of drug abuse, and mood disorders.

Class Hour: 2 to 3 lectures/seminars per week, times t.b.a.

Teaching: Ten lectures and four hours of tutorials/seminars and 12 hours practical.

Assessment: Continuous Assessment = 34%, 2 Hour Examination = 66%

BL3010 Basic Bioenergetics

Credits: 10.0 Semester: 2

Prerequisite: Any basic biochemistry course (equivalent to BL2201) AND registered for BSc Biomolecular Science or as non-graduating student

Anti-requisites: BL3006

Description: Energy transduction is essential for all cells. This module explores the structure and function of electron transport systems, chemiosmotic theory, mechanisms of ATP synthesis, and ion transport. Web-based resources provide a wider experience of recent advances.

Class Hour: 2 to 3 lectures/seminars per week, times t.b.a.

Teaching: Fifteen lectures and five hours of tutorials/seminars.

Assessment: Continuous Assessment = 34%, 2 Hour Examination = 66%

BL3021 Terrestrial Ecology

Credits: 20.0 Semester: 1

Co-requisite: BL3000

Description: This module introduces current concepts in ecology with emphasis on terrestrial ecosystems. Ecosystem theory, including ecosystem function, ecosystem services and diversity/functionality relationship will be described. The adaptation of organisms (plants and animal) to habitats will be described and their ability to utilise resources (grazing, predation) examined. Community structure and function will then be investigated with examples from varied terrestrial habitats including extreme environments such as desert and polar regions.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 hours, including up to 35 hours lectures and seminars, and practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3022 Aquatic Ecology

Credits: 20.0 Semester: 1

Prerequisite: BL3021

Description: This module introduces the ecology of aquatic systems beginning with a description of the problems of life in a fluid medium. The module then considers the contrasting conditions that are inherent in freshwater, estuarine and marine systems. The influence of global climate variation and the close coupling between land and sea will be emphasised. Case studies will then be used to introduce the ecology of a variety of aquatic systems including tropical, temperate and polar systems.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 hours, including up to 35 hours lectures and seminars, and practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

Biology – Honours

BL3023 Evolution

Credits: 20.0 Semester: 1

Description: Topics in this module will include: molecular variation and evolution, including phylogeny reconstruction; the evolution and maintenance of sex; the genetics of continuous traits, and the relative importance of continuous and discontinuous variation in evolution; evolution of population genetic structure; the genetics of speciation, covering the evolution of pre- and post- zygotic isolation, reproductive displacement and reinforcement, and parapatric, sympatric and island speciation. Practicals will involve computer simulations to investigate a range of evolutionary phenomena, plus use of molecular markers to examine population structure and speciation.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3024 Biodiversity & Conservation

Credits: 20.0 Semester: 2

Prerequisite: BL3021

Description: This module covers the theoretical foundation for addressing the practical problems of ecology and biodiversity. Basic concepts of population ecology are addressed, such as predation and competition. Then the nature and measurement of biodiversity are considered. Further topics include island biogeography; community dynamics; and the role of spatial and temporal variation in ecosystems. Examples will be drawn from marine, freshwater and terrestrial ecology. There will be site visits and simple computer modelling sessions.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3025 Behavioural Ecology

Credits: 20.0 Semester: 2

Description: This module covers the behaviour of animals and how it interacts with the environment in which they live. The major topics to be covered will be foraging behaviour, inter-species interactions, mating strategies and breeding systems, together with social behaviour and how factors such as kinship, conflict and cooperation influence it. Practical work will be in the form of mini-projects carried out by groups of students under the supervision of a member of staff.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3027 Environmental Physiology

Credits: 20.0 Semester: 2

Description: This module deals with how physiological processes allow animals and plants to cope with physical variation in their environments. Concepts of scale are central to understanding physical constraints on organisms and these will be dealt with at the beginning of the course. There will be an examination of the effects of size on metabolic rate in animals and the consequences of this for their growth, ecology and life-histories. A central feature of the course will be an exploration of the responses of both plants and animals to variation in temperature, osmotic stress and nutrients in terrestrial and aquatic environments. There will be an analysis of the physiological responses to seasonal fluctuations including reproductive seasonality, seasonal fattening, torpor and hibernation in animals, and developmental responses in plants.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL3102 Metabolic & Clinical Biochemistry

Credits: 20.0 Semester: 2

Description: The module presents an integrated review of overall human metabolism and the methods of diagnosing and treating some common diseases. The syllabus includes: (i) a review of human metabolism and its control; (ii) overall body energy expenditure and nutritional requirements; (iii) processing of dietary constituents; (iv) metabolic changes associated with starvation, obesity and exercise, and their underlying hormonal controls and regulatory systems; (v) discussion of the role of biochemistry in investigating and monitoring human disease, which will include metabolic variability, inborn errors of metabolism, endocrinology, homeostasis, plasma protein metabolism, muscle and hepatic metabolism, drug disposition and metabolism, and defects in glucose and lipid metabolism. Practical classes and laboratory visits to Victoria Hospital will be incorporated into the course.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4101 Structural Biology

Credits: 20.0 Semester: 1

Description: This module will introduce the students to the basic concepts and motifs of structural biology and the methods used to determine structure. The relationships between structure and function will be discussed. The applications of techniques such as X-ray crystallography and NMR in the determination of the structures of proteins, carbohydrates and nucleic acids will be described. The practical components will include demonstrations of techniques and laboratory work.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4102 Biotechnology and Bioinformatics

Credits: 20.0 Semester: 1

Description: This module will introduce students to recent developments in the fields of biotechnology and bioinformatics. The utilities and applications of bioinformatics in the biological sciences be discussed together with an overview of topics relevant to biotechnology.

WWW-based resources that allow database searching and information retrieval will be introduced and demonstrated. In particular, the module will cover: transgenic technologies, genome databases, gene expression and disease; protein structure and function; protein sequence comparisons and evolution; proteomics and protein characterisation by mass spectrometry.

The emphasis will be on equipping the student with a broad overview of the web-based resources available for biomedical research, and with practical experience in gathering, analysing and presenting such data.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4103 Gene Expression

Credits: 20.0 Semester: 1

Prerequisite: BL3002

Description: This module will investigate how organisms control the flow of information from gene to protein in response to metabolic, cell cycle and developmental signals. Initially the 'simpler' systems that bacteria have developed to control gene expression will be examined. Recent structural analysis has revealed the molecular basis for the action of these elements. Control of higher eukaryotic transcription will be investigated at the levels of nucleoprotein-complex assembly and changes in chromatin structure. Specific systems where control mechanisms have been elucidated will be investigated.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

Biology – Honours

BL4104 Cytoskeleton

Credits: 20.0 Semester: 1

Description: This module deals with the structure, function and assembly of the three main types of cytoskeleton arrays (those largely constructed from microtubules, actin filaments or intermediate filaments). Topics usually include: microtubule-organising centres, centrosomes, centrioles, motor proteins, ciliary and flagellar beating, mitotic spindle assembly, anaphase chromosome movement, axoplasmic transport, cytoplasmic streaming, cleavage furrow formation, nuclear lamins, formation of focal adhesions, and the roles of actin and mysoin in muscle and non-muscle cells. There will be emphasis on the dynamic properties of the cytoskeleton studied in living cells using novel gene constructs, and on functional interactions between the three major cytoskeletal elements. High resolution light and electron microscopy, confocal laser scanning microscopy, multi-photon microscopy, and immunoflourescence microscopy contribute substantially to the understanding of cytoskeletal organisation. Instruction in the theory and practice of modern microscopical techniques is an especial feature of this module.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4107 Neural & Endocrine Physiology

Credits: 20.0 Semester: 1

Pre-requisite: BL2002 or BL3004

Description: The module includes endocrinology and neurophysiology. Special emphasis is given to acute and chronic homeostatic mechanisms under the control of the endocrine and nervous systems. The normal functioning of some hormonal systems is covered in depth and then consideration is given to the pathophysiology of selected diseases. Neural topics covered include sensory physiology, neurodegenerative diseases, and the development of vertebrate axons and their connections.

Practicals will be used to supplement the lecture component of the module. Topics may include Glucose Tolerance, Immunocytochemistry, and Apoptosis.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4108 Systems Physiology & Pathology

Credits: 20.0 Semester: 1

Pre-requisite: BL2006

Description: This module includes lectures on renal, gastrointestinal, cardio-vascular, respiratory and skin physiology. The normal funtioning of these systems is considered in detail, and consideration is then given to the pathophysiology of selected disease states. Inflammation and the body's response to injury will also be considered. The physiological bases of modern therapeutic strategies are discussed where appropriate. The practicals will supplement the lecture component of the module. The practicals may involve a range of non-invasive procedures carried out on the class, on living experimental animals and/or on animal derived tissues. Different practicals will introduce a variety of experimental techniques, which in some cases may involve lengthy laboratory sessions.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4109 Developmental Biology

Credits: 20.0 Semester: 1

Description: The enigma of development is how complexity arises from apparent simplicity - how an adult develops from an egg. This module will examine development in a range of organisms, but will concentrate on higher vertebrates including man, and the fruitfly *Drosophila*, which have served as the models from which key discoveries are emerging very rapidly. Early-acting mechanisms for generating mutual differences between initially identical cell populations, and thus producing patterning and structure in embryos, will be considered. The evolutionary conservation of developmental mechanisms will be reviewed. Recent advances in the use of transgenic animals for investigating development will be considered, and the molecular genetics of human development and human abnormalities are discussed. Practicals will include tissue culture, morphogenesis and work on early vertebrate development.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4110 Exercise Physiology

Credits: 20.0 Semester: 1

Prerequisite: BL4108

Description: Human beings exercise under different environmental conditions, varying from changes of pressure in diving, shortage of oxygen at altitude, and the demands provided by thermal extremes. Using examples from sport we shall examine the adaptations required to perform well under a variety of environmental conditions, and investigate whether training in abnormal conditions can benefit performance. Although not enough is known about the physiological limits to performance, we have been able to identify some of the key factors and establish valid tools of measurement. The module will assess a variety of physiological variables to evaluate the fitness of the trained athlete, for example, running economy, maximum oxygen consumption, and lactate accumulation. You will be required to carry out laboratory measurements of some of these variables and you should be prepared to act as a subject in those experiments not requiring maximal effort. To benefit fully from this module it is necessary to be active in sport or recreation.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4111 Vertebrate Physiology

Credits: 20.0 Semester: 1

Availability: 2003-04

Prerequisites: BL2006 or BL3027

Description: This module deals with specialist areas in animal physiology. The course will be presented from an ecological and environmental perspective where possible. Topics covered will include physiology of vertebrate skeletal muscle, advanced topics in energetics and locomotion, diving, adaptations to altitude, osmoregulation and endocrine physiology.

Class Hour: To be arranged.

Teaching: Lectures: 3 lectures per week, times t.b.a. plus 2 two-hour tutorials. Practicals: approximately four three-hour practicals, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

Biology – Honours

BL4112 Cancer Biology

Credits: 20.0 Semester: 1

Pre-requisites: BL2002

Description: The module will provide a broad overview of cancer biology. It will contain 5 themes : Stem Cell Biology (normal stem cells, stem cell plasticity and proliferation regulation of stem cells); Properties of Tumour Cells (tumour cell kinetics, metastasis, epidemiology and carcinogenesis); Molecular Biology of Cancer (oncogenes, tumour supressor genes and multi-step events); Cancer Predisposition and Molecular Cytogenetics (chromosome structure and DNA damage, predisposition to cancer, cytogenetic changes); Cancer Therapy (principles of radiobiology, principles of radiotherapy and chemotherapy, prospects of treatment and prevention). The practical classes will illustrate how tumour cells can be investigated in the laboratory using cell culture, cytogenetic and molecular techniques.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours of lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4121 Marine Biology

Credits: 20.0 Semester: 1

Prerequisite: BL3022

Description: This module addresses selected aspects of the biology of marine invertebrates and fish throughout the World Ocean from shallow water to the deep sea. Complementary to assessments of the ecology of particular benthic and pelagic communities – their structure, dynamics and emergent properties – will be overviews of global patterns of diversity in the marine biosphere. The environmental control of reproductive activity leads to the consideration of marine invertebrate larval strategies and the settlement and metamorphosis of planktonic larval forms. The module concludes with consideration of the impacts of ongoing anthropogenic activities on marine environments.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, and practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4122 Marine Mammal Biology

Credits: 20.0 Semester: 1

Description: The study of marine mammals involves concepts and processes from the molecular level up through population and ecosystem levels of organization. This module will present current knowledge of marine mammal biology and the methodologies used in its study. Topics will include the range of species, their general biology, methods for studying individuals and populations, physiological and behavioural adaptations to the marine enviornment, ecology and interactions with man. The emphasis will be on areas of study where advances in knowledge are most rapid and on areas of current concern for marine mammal populations.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 hours, including up to 35 hours lectures and seminars, and practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4123 Marine and Environmental Microbiology

Credits: 20.0 Semester: 1

Description: This module begins with a survey of the features and distribution of microorganisms in marine and freshwaters, sediments and soils, including the deep sea and other extreme environments, stressing sampling methods, culture, enumeration and biomass determination. The role of microorganisms in the ecology of natural environments (especially decomposition, nutrient cycling, and marine fouling) is considered. Lectures are also given on particular marine topics, especially the principle diseases of fish and shellfish, the microbiology of petroleum, and bacteriological aspects of sewage pollution in seas.

Class Hour: . Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester , weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, plus practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4124 Evolutionary Ecology

Credits: 20.0 Semester: 1

Prerequisite: BL3023

Description: This module will address advanced topics in evolutionary biology. The focus will be on experimental approaches to the study of evolution in the laboratory as well as in the field. Emphasis will be placed on experimental conception and design, and on analysis of data addressing evolutionary topics. These will include sexual selection, breeding system evolution, population structure and geographic divergence, and phenotypic evolution. Recent advances in genomic analysis and bioinformatics and their application to interpretation of evolution will also be considered.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars, and practicals.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4125 Animal-Plant Interactions

Credits: 20.0 Semester: 1

Prerequisite: BL3021

Description: This module concerns the coevolution of plants and animals, including physiological, behavioural and ecological aspects of their interactions. Pollination biology and the constraints on the participating plants and animals are dealt with in depth, followed by a review of seed dispersal. Then herbivory by insects and by vertebrates on land, and aquatic herbivory, are considered; illustrating the coevolution of plant defences and herbivores' reciprocal adaptations. There is an introduction to insects as pests, to tritrophic interactions, and integrated approaches to control measures.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4126 Environmental Plant Science

Credits: 20.0 Semester: 1

Prerequisite: BL2003

Description: This module will provide an analysis of the ways in which plants interact with their physical, chemical and biological environments. This is a wide-ranging course which aims to bring together current knowledge of the physiological and molecular responses of plants within the wider context of how whole organisms and communities respond to the environment. Topics include: parasitism, plant pathogens and diseases, symbioses, plant stress responses, and human influences such as pollution, bioremediation, genetic modification and crop breeding. The module will include field visits to collect and analyse plants from different habitats and visits to industrial and research institutes.

Class Hour: Lectures: 3 lectures per week, times t.b.a. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Teaching: 40-50 contact hours, including up to 35 hours lectures and seminars.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

Biology – Honours

BL4127 Mechanisms of Animal Behaviour

Credits: 20.0 Semester: 1

Availability: 2004-05

Description: This module deals with a variety of topics in animal behaviour and what is known of the mechanisms underlying them at both the neural and behavioural levels. Subjects dealt with range from simple patterns, such as locomotion, rhythms and escape responses, through mechanisms of sensory-motor integration, to orientation and navigation, how behaviour develops, mechanisms of communication, assessing animal needs and welfare. Where possible information on different levels of analysis will be integrated. The course will be accompanied by laboratory practicals and student seminars on special topics.

Class Hour: To be arranged.

Teaching: Lectures: 3 lectures per week, times t.b.a. plus 1 or 2 two hour tutorials. Practicals: maximum of 3 afternoons and one full day per week, but practicals will run in only 3 weeks of the semester, weeks t.b.a.

Assessment: Continuous Assessment = 34%, 3 Hour Examination = 66%

BL4200 Research Project

Credits: 45.0 Semester: Whole Year

Anti-requisite: BL3200

Description: This project will involve the study of a defined problem within the area of biology, appropriate to the degree programme being studied by each student. This will involve an understanding of the design of experiments; the gathering, collation and analysis of data; and the discussion of results, on their own and in the light of existing literature. The project will be written up in the form of a research dissertation.

Assessment: Continuous Assessment = 100%

BL4300 Recent Advances

Credits: 15.0 Semester: Whole Year

Anti-requisite: BL3300

Description: This module encourages awareness of recent developments throughoutbiology, particularly from topics introduced in a series of seminars. It requires students to demonstrate their ability to evaluate and integrate recent advances into structured essays, showing understanding of the significance of the research rather than expertise with technical details, and an ability to transfer or integrate information among research fields. It also encourages an informed opinion where areas are controversial or particularly uncertain. The subject matter for the essays is to come from general reading outwith taught modules, as well as from seminars attended.

Class Hour: 12.00 noon Wednesday, seminars (green); various (red).

Assessment: 3 Hour Examination = 100%