



## **Intercalated Degree Handbook**

**Academic Year 2010/11**

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## Intercalation Team

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## Why do an Intercalated Degree?

The intercalated degree is an optional addition to a medical degree. It can be in any subject, though in practice it has to be in a subject for which the candidate's background means that they can get to the degree level in a year. In recent years, increasing numbers of students in the UK have chosen to do an intercalated degree for a variety of reasons. For some students this may contribute to a planned career path, while for others the main motivation may be to broaden their scientific horizons, or to experience different intellectual challenges from those of clinical training. Most students who do an intercalated degree say they have benefited from the experience – and this sense of having something “extra” to offer often increases with time.

BSMS offers, through its parent universities, a range of intercalated degrees which are summarised in this handbook. At this medical school, the intercalated degree is taken between years 3 and 4, slightly later than at many other schools. The handbook describes the degrees we have on offer here in the Brighton and Sussex academic communities.

## Reasons to do an Intercalated Degree

- To get in depth scientific training in an area already of interest to you.
- To get an additional qualification of relevance to your future career.
- To broaden your medical interests into an area outside the undergraduate curriculum.
- To study with students from outside a clinical medicine background
- As an intellectual challenge that will help you in later medical studies.
- To improve writing and reporting skills by doing a subject where these are developed more than in undergraduate clinical medicine.

## Reasons not to do an Intercalated Degree

- **For a relaxing year with the pressure off.** Intercalating students sometimes find it hard getting used to the more laboratory or book based life of other students.
- **Having difficulty focussing on medical training.** You might come back reinvigorated. But first think about what the difficulties are that you are having, and what they mean for your long term career plans. Talk to your clinical academic tutor, to student support and perhaps the university careers service.
- **To improve your career prospects generally but without wanting to do the subject..** MMC and medical careers in general will continue to evolve. While a good intercalated degree, in any subject, is likely to help you demonstrate that you are hardworking and able to focus on an objective, a poor degree may show the opposite. You can always do a Masters later on, if you don't think you are ready to focus on an intercalated degree.

## What should I do to go about planning my Intercalated Year?

Planning Your Intercalated Year

References and Letters of Release

## Planning Your Intercalated Year

- Find an intercalated course that suits you. Look at this handbook, look up further details on the relevant university website, and talk to the course organiser. Talk to other students on the course at present or recently, and get a sense of what is involved
- Apply **DIRECTLY** for the course, according the application procedures of the institution offering it (e.g. University of Sussex, University of Brighton), **NOT** via BSMS
- You should apply for **ONE** local BSc course only
- Inform your clinical academic tutor that you have applied for intercalation
- You can also ask for a reference from your Clinical Academic Tutor

Click here for information specific to applying for the [BSc in Neuroscience](#) at Sussex University

## References and Letters of Release

- Clinical Academic Tutors (CAT's) will usually be the appropriate person to provide you with a reference for a specific course, either locally or further afield. This may be provided using BSMS or NHS letterheads or a-mail addresses. Some students may have a working relationship with another academic (e.g. following a summer junior research fellowship) in which case that person may be a more appropriate referee. But in generally, the CAT should be approached in the first instance.

- Some courses will require a letter of good standing and 'release' from BSMS. This can be obtained by applying to the School Office, and will be signed by the Phase Leader or the Director of Undergraduate Studies. In the unlikely event that you are intercalating against BSMS advice, you may be asked to discuss your plans with the Phase Leader.

## **Assessment of the Intercalated Year**

During the intercalated year, you will be a student at the institution offering your intercalated degree. You will be subject to their rules and regulations with regard to academic performance. However, a student failing to complete their intercalated degree may be considered not to be in good standing to return to year 4 of clinical studies.

Since you will return as a medical student, we will ask the institution where you are studying to confirm that nothing has led them to consider that we need to look into your fitness to practice. Should any such problem have occurred, we will look into it in the same way as for any other BSMS student. We will also ask your institution to confirm late in the academic year that no problems in completion of your degree are envisaged, so that student support and clinical academic tutors can assist in ensuring a smooth return to year 4 if need be.

## BSc Degrees related to Biochemistry – including Molecular Medicine and Molecular Genetics options

**Contact:** **Dr Neil Crickmore**  
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[Click here for BSc Biochemistry](#)

[Click here for BSc Molecular Genetics](#)

[Click here for BSc Molecular Medicine](#)

### BSc Biochemistry

Title of degree to be obtained	<b>BSc Biochemistry</b>
Institution awarding degree	<b>University of Sussex</b>
Brief description of course	This course builds on fundamental knowledge of how cells and organisms function by looking at how current scientific research is being used to advance knowledge of biochemical processes. Following a short introduction to molecular biological techniques students will undertake a ten-week individual project in an active research lab. In addition there is a choice of other courses available each of which relies heavily on the use of primary scientific literature.
Compulsory modules (number and names)	Final year project (for intercalating students) – 30 credits

Optional modules (number to be taken, and names)	<p>Students must take 90 credits from the following courses (credits must be evenly balanced across terms).</p> <p>At least 60 credits from:</p> <p>Biochemistry of Gene Expression (30)  Cell Signalling and its Applications in Disease and Therapeutics (15)  Molecular Genetics (15)  Genomics (15)  Immunology in Health and Disease (15)  Genome Stability, Genetic Diseases and Cancer (15)  Protein Form and Function (15)  Endocrinology and Disease (15)</p> <p>A maximum of 30 credits from:</p> <p>Biotechnology, Innovation and Science Policy (15)  Modern Human Evolution (15)  Plant Function and Environment (15)  Neuronal Transduction and Transmission (15)  Medicinal Plants (15)  Developmental Neurobiology (15)  Neuronal Plasticity and Gene Regulation (15)  Molecular Ecology and Evolution (15)  Genes and Development (15)  Topics in Evolutionary Theory (15)</p>
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Mode(s) of assessment	<p>Unseen examination:</p> <p>Biochemistry of Gene Expression  Cell Signalling and its Applications in Disease and Therapeutics  Molecular Genetics  Immunology in Health and Disease  Genome Stability, Genetic Diseases and Cancer  Protein Form and Function  Endocrinology and Disease</p> <p>Coursework:</p> <p>Genomics  Biotechnology, Innovation and Science Policy  Modern Human Evolution  Developmental Neurobiology</p> <p>Unseen examination and coursework:</p> <p>Plant Function and Environment  Neuronal Transduction and Transmission  Medicinal Plants  Neuronal Plasticity and Gene Regulation  Molecular Ecology and Evolution  Genes and Development  Topics in Evolutionary Theory</p>
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## BSc Molecular Genetics

Title of degree to be obtained	<b>BSc Molecular Genetics</b>
Institution awarding degree	<b>University of Sussex</b>
Brief description of course	This course builds on fundamental knowledge of how cells and the molecules within them function by looking at how current scientific research at the molecular level is being used to

	<p>advance knowledge of biochemical processes. Following a short introduction to molecular biological techniques students will undertake a ten-week individual project in an active research lab. In addition there is a choice of other courses available each of which relies heavily on the use of primary scientific literature.</p>
<p>Compulsory modules (number and names)</p>	<p>Final year project (for intercalating students) – 30 credits</p>
<p>Optional modules (number to be taken, and names)</p>	<p>Students must take 90 credits from the following courses (credits must be evenly balanced across terms).</p> <p>At least 60 credits (with at least 30 credits from * “Molecular Genetics” courses) from:</p> <p>Biochemistry of Gene Expression (30)*  Cell Signalling and its Applications in Disease and Therapeutics (15)  Genomics (15) *  Immunology in Health and Disease (15)  Molecular Genetics (15) *  Biotechnology, Innovation and Science Policy (15) *  Endocrinology and Disease (15)  Genome Stability, Genetic Diseases and Cancer (15)  Protein Form and Function (15)  Molecular Ecology and Evolution (15)</p> <p>A maximum of 30 credits from:</p> <p>Modern Human Evolution (15)  Neuronal Transduction and Transmission (15)</p>

	<p>Plant Function and Environment (15)</p> <p>Developmental Neurobiology (15)</p> <p>Genes and Development (15)</p> <p>Neuronal Plasticity and Gene Regulation (15)</p> <p>Topics in Evolutionary Theory (15)</p>
Mode(s) of assessment	<p>Unseen examination:</p> <p>Biochemistry of Gene Expression</p> <p>Cell Signalling and its Applications in Disease and Therapeutics</p> <p>Immunology in Health and Disease</p> <p>Molecular Genetics</p> <p>Endocrinology and Disease</p> <p>Genome Stability, Genetic Diseases and Cancer</p> <p>Protein Form and Function</p> <p>Coursework:</p> <p>Genomics</p> <p>Biotechnology, Innovation and Science Policy</p> <p>Modern Human Evolution</p> <p>Developmental Neurobiology</p> <p>Unseen examination and coursework:</p> <p>Molecular Ecology and Evolution</p> <p>Neuronal Transduction and Transmission</p> <p>Plant Function and Environment</p> <p>Genes and Development</p> <p>Neuronal Plasticity and Gene Regulation</p> <p>Topics in Evolutionary Theory</p>

## BSc Molecular Medicine

Title of degree to be obtained	<b>BSc Molecular Medicine</b>
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Institution awarding degree	<b>University of Sussex</b>
Brief description of course	This course builds on fundamental knowledge of how the body works and associated disease processes by looking at how current scientific research is being used to advance knowledge in these fields. Following a short introduction to molecular biological techniques students will undertake a ten-week individual project in an active research lab. In addition there is a choice of other courses available each of which relies heavily on the use of primary scientific literature.
Compulsory modules (number and names)	Final year project (for intercalating students) – 30 credits
Optional modules (number to be taken, and names)	<p>Students must take 90 credits from the following courses (credits must be evenly balanced across terms).</p> <p>At least 60 credits from:</p> <p>Immunology in Health and Disease (15)  Cell Signalling and its Applications in Disease and Therapeutics (15)  Medicinal Plants (15)  Endocrinology and Disease (15)  Genome Stability, Genetic Diseases and Cancer (15)</p> <p>A maximum of 30 credits from:</p> <p>Biochemistry of Gene Expression (30)  Genomics (15)  Molecular Genetics (15)  Protein Form and Function (15)  Biotechnology, Innovation and Science Policy (15)</p>

	<p>Neuronal Transduction and Transmission (15)</p> <p>Receptors and Senses (30)</p> <p>Genes and Development (15)</p> <p>Developmental Neurobiology (15)</p> <p>Neuronal Plasticity and Gene Regulation (15)</p> <p>Topics in Evolutionary Theory (15)</p> <p>Psychobiology of Cognitive Ageing and Dementia (15)</p> <p>Sensory and Motor Functions of the Nervous System (15)</p>
<p>Mode(s) of assessment</p>	<p>Unseen examination:</p> <p>Immunology in Health and Disease</p> <p>Cell Signalling and its Applications in Disease and Therapeutics</p> <p>Endocrinology and Disease</p> <p>Genome Stability, Genetic Diseases and Cancer</p> <p>Biochemistry of Gene Expression</p> <p>Molecular Genetics</p> <p>Protein Form and Function</p> <p>Psychobiology of Cognitive Ageing and Dementia</p> <p>Coursework:</p> <p>Genomics</p> <p>Biotechnology, Innovation and Science Policy</p> <p>Developmental Neurobiology</p> <p>Sensory and Motor Functions of the Nervous System</p> <p>Unseen examination and coursework:</p> <p>Medicinal Plants</p> <p>Neuronal Transduction and Transmission</p> <p>Receptors and Senses</p>

	<p>Genes and Development</p>
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Neuronal Plasticity and Gene Regulation

Topics in Evolutionary Theory

## BSc Biomedical Sciences

**Course leader:** Dr J. Elsom  
School of Pharmacy and Biomolecular Sciences  
University of Brighton  
Cockcroft Building  
Lewes Road  
Brighton BN2 4GJ  
Telephone: 01273 642051  
Email: [j.elsom@brighton.ac.uk](mailto:j.elsom@brighton.ac.uk)

Title of degree to be obtained	<b>BSc Biomedical Sciences</b>
Institution awarding degree	<b>University of Brighton</b>
Brief description of course	This course offers a multidisciplinary approach to pathobiology at the molecular, cellular, tissue, organ and organism level. Students focus on disease diagnosis, treatment and prevention, and gain detailed knowledge and practical skills that underpin research and professional practice in biomedical science; this includes the main pathology disciplines of medical microbiology, cellular pathology, clinical biochemistry, clinical immunology, and haematology. Specialist option modules include forensic biology, neuroscience, biomaterials and tissue engineering. The course is accredited by the Institute of Biomedical Science.
Compulsory modules (number and names)	BY327 blood sciences (20 credits); BY344 clinical and applied immunology (10 credits); BY329 medical genetics (10 credits); BY350 cell pathology and special topics in pathobiology (20

	credits); BY313 clinical microbiology (10 credits); BY392 research project (40 credits)
Optional modules (number to be taken, and names)	Semester 2. 1 x 10 credit module from BY348 diet and disease; BY345 pharmacogenomics; BY342 biomaterials and tissue engineering; PL317 neuroscience; BY341 astrobiology
Mode(s) of assessment	50% exam and 50% coursework for all modules except the following:  BY343 40% exam 60% coursework  BY392 100% coursework

## **BSc Neuroscience: Biology and Environmental Science Courses**

### **Programme Admissions & Neuroscience Degree Convenor:**

Daniel Osorio

Director of Taught Programmes (Life Sciences) and Professor of Neuroscience

Rm 3b31 John Maynard Smith Building

School of Life Sciences, University of Sussex, Falmer, Brighton BN1 9QG

Tel (01273) 877440

Email: [d.osorio@sussex.ac.uk](mailto:d.osorio@sussex.ac.uk)

Candidates must take 120 credits worth of courses listed below. All courses are 15 credits unless stated otherwise. Typically, candidates take 45 credits worth of lecture courses per term and a 30 credit project. For the Neuroscience B.Sc. over the two terms candidates may take up to 30 credits worth of Biochemistry courses and 30 credits worth of Psychology courses. Students who wish to vary their programme should talk to the Convenor.

This document gives the names of courses available for the intercalated B.Sc. in Neuroscience course organisers and a list of which majors may take the course. Options are available from the Biology & Environmental Sciences (BES), Psychology, and Biochemistry Departments in the School of Life Sciences at the University of Sussex. Your attention is also drawn to some restrictions on the availability of courses. Brief descriptions of courses can be found on the teaching pages of the Departmental Websites, under Course Directory (look up [www.sussex.ac.uk/biochemistry](http://www.sussex.ac.uk/biochemistry); [www.sussex.ac.uk/biology](http://www.sussex.ac.uk/biology); [www.sussex.ac.uk/psychology](http://www.sussex.ac.uk/psychology) depending on which department runs the course in question). There is also a folder of course outlines in department offices, if you are having trouble accessing the websites, and you can contact the Course Organiser for further information, should you require it.

We now have a simple web page to explain our Intercalated programmes here:

<http://www.sussex.ac.uk/biology/1-2-41.html>

It is linked to this web page via the search facility:

[www.intercalate.co.uk](http://www.intercalate.co.uk)

NB. We cannot guarantee that a course will be available. This being subject to the level of interest or availability of spaces. Also certain Psychology courses may be unsuitable unless the candidate can demonstrate adequate pre-requisite knowledge

**Click the links for the following Biology and Environmental Science Courses:**

[Functional Neuroanatomy for Medical Students](#)

[Intelligence in Animals and Machines](#)

[Neuronal Transduction and Transmission](#)

[Developmental Neurobiology](#)

[Neuronal Plasticity and Gene Regulation](#)

[Sensory Systems and Receptors](#)

## Functional Neuroanatomy for Medical Students

Course Title	<b>Functional Neuroanatomy for Medical Students</b>
Course Organiser	<b>c/o. Daniel Osorio</b>
Term	Autumn
Credits	15 credits
Course description	Functional anatomy of brain regions and their cellular components from both vertebrate and invertebrate organisms, especially mammalian brain. We describe anatomical substrates for processing of sensory information and the generation of motor commands to reveal the relationship between structure and function. The course outlines the main techniques used to study the functional anatomy of the brain at systems and cellular levels.
Assessment:	Coursework 50% based on essays and seminar presentations; 2 hour end of year examination

## Intelligence in Animals and Machines

Course Title	<b>Intelligence in Animals &amp; Machines</b>
Course Organiser	<b>Daniel Osorio</b>
Term	Autumn
Credits	30 credits
Course description	The course will develop understanding of what it means for an animal or a machine to behave intelligently, and how brain and behavioural systems are adapted to enable an animal to cope effectively within its environment. We consider diverse aspects of intelligence including navigation and motor control, numerical, language, memory and social skills. We ask how these are related to one another and how they are matched to the particular needs of animals and machines.
Assessment:	3 hour Exam 70%, Coursework 30% consisting of Essay 50%, two

	Presentations
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## Neuronal Transduction and Transmission

<b>Course Title</b>	<b>Neuronal Transduction &amp; Transmission</b>
<b>Course Organiser</b>	<b>Michael O'Shea</b>
<b>Term</b>	7/9 (Autumn)
<b>Credits</b>	15 credits
<b>Course description</b>	<p>This course deals with aspects of neuronal signalling, in both vertebrates and invertebrates, highlighting how molecular structure relates to function in signalling pathways. There will be an emphasis on understanding how molecular and cellular mechanisms underlie the function of the CNS at a systems level and the generation of behaviour. The course begins with the problem of sensory transduction (getting information into the nervous system) with a particular emphasis on mechanical (auditory) and visual modalities. This will be followed by a series of lectures on how information is processed at the synapse, covering electrical transmission and pre- and post-synaptic mechanisms at the chemical synapse. Non-synaptic information processing will also be introduced.</p>
<b>Assessment:</b>	2 hour Unseen Exam 75%, Coursework 25% consisting of Essay (100%)

## Developmental Neurobiology

<b>Course Title</b>	<b>Developmental Neurobiology</b>
<b>Course Organiser</b>	<b>Mark Maconochie</b>
<b>Term</b>	Spring
<b>Credits</b>	15 credits
<b>Course description</b>	<p>The human adult nervous system consists of the central and peripheral nervous system, including the brain, spinal cord and peripheral nerves, as well as specialised sensory organs such as the eye and ear. The wide range of specialised cell types that are found in the nervous system arise during early embryonic development, through processes largely under genetic control. Furthermore, many of the genetic elements of developmental pathways have been retained across different species during evolution. This course will cover selected highlights of the latest research findings from different</p>

	experimental systems that have informed our understanding of the genes and cellular processes involved in nervous system development and organisation. The course will review contemporary research findings from the following themes: (1) Early events in neural development – neurogenesis and neural tube induction, determination and differentiation, axon guidance and pathfinding (2) Organisation of the central nervous system (3) Development of sensory organs.
Assessment:	Coursework 100% consisting of two Precises (10% each), two Review Papers (10% each), Poster Presentation (20%), Take Away Paper (40%).
Reading List	Development of the Nervous System, Dan H. Sanes, Thomas A. Reh, William A. Harris
	Developmental Neurobiology, Rao, Mahendra S.; Jacobson, Marcus (Eds.)

## Neuronal Plasticity and Gene Regulation

Course Title	<b>Neuronal Plasticity &amp; Gene Regulation</b>
Course Organiser	<b>Sergei Korneev</b>
Term	Spring
Credits	15 credits
Course description	This course will consider how cellular and molecular mechanisms interact in the regulation of neural functions underlying plasticity and differentiation. Particular emphasis will be placed on how the cellular and synaptic processes interact with molecular mechanisms associated with the regulation of gene expression. These mechanisms will be presented in the context of their importance in forms of synaptic plasticity that underlie memory formation and storage. Newly discovered molecular regulatory mechanisms involving epigenetic regulation, natural antisense transcripts (NATs) such as microRNAs (miRNAs) will be discussed in the context of the regulation of neural function.
Prerequisites	Transduction & Transmission (Autumn Term)
Assessment:	2 hour Unseen Exam 75%, Coursework 25% consisting of Essay (100%)

## Sensory Systems and Receptors

<b>Course Title</b>	<b>Sensory Systems &amp; Receptors</b>
<b>Course Organiser</b>	<b>Daniel Osorio</b>
<b>Term</b>	Spring
<b>Credits</b>	30 credits
<b>Course description</b>	This course deals with animal senses including vision, hearing, olfaction and echolocation. How natural signals are processed in the nervous system and how sensory information is used in behaviour.
<b>Assessment:</b>	TBC

## **BSc Neuroscience: Biochemistry Courses**

Programme Admissions & Neuroscience Degree Convenor:

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Director of Taught Programmes (Life Sciences) and Professor of Neuroscience

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depending on which department runs the course in question). There is also a folder of course outlines in department offices, if you are having trouble accessing the websites, and you can contact the Course Organiser for further information, should you require it.

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NB. We cannot guarantee that a course will be available. This being subject to the level of interest or availability of spaces. Also certain Psychology courses may be unsuitable unless the candidate can demonstrate adequate pre-requisite knowledge

Click the links for the following Biochemistry courses:

[Biochemistry of Gene Expression](#)

[Molecular Biology of Cancer](#)

[Cell Signalling and its Applications in Disease and Therapeutics](#)

[Genomics](#)

[Immunology in Health and Disease](#)

[Molecular Genetics](#)

[Biotechnology, Innovation and Science Policy](#)

[Endocrinology and disease](#)

[Protein Form and Function](#)

## Biochemistry of Gene Expression

Course Title	<b>Biochemistry of Gene Expression</b>
Course Organiser	Trevor Beebee
Term	Autumn & Spring
Credits	30 credits
Course description	Biochemistry of Gene Expression provides a detailed picture at the molecular level of gene transcription, RNA processing and the translation of messenger RNA into protein. The lectures highlight similarities and differences in the mechanism of gene expression in bacteria compared with the situation in eukaryotic cells. There is also extensive coverage of how gene expression is regulated in bacterial and animal cells.
Assessment:	3 hour Unseen Exam in the Summer term

## Molecular Biology of Cancer

<b>Course Title</b>	<b>Molecular Biology of Cancer</b>
<b>Course Organiser</b>	<b>Alison Sinclair</b>
<b>Term</b>	Autumn & Spring
<b>Credits</b>	30 credits
<b>Course description</b>	The design of new therapies for cancer depends on first understanding the molecular events that cause the disease. The aim of this course is to understand the molecular mechanisms that control the proliferation and survival of normal cells and to appreciate how the genetic changes that occur during the development of cancer disrupt these controls. Throughout the course emphasis will be placed on the review and critical evaluation of recently published experimental evidence; advances in this area rely on a combination of biochemical analysis, genetic approaches and bioinformatics. Lectures will be complemented by discussion groups.
<b>Prerequisites</b>	Cell Regulation and Cancer or appropriate equivalent for non Sussex BSc students
<b>Assessment:</b>	3 hour Unseen Exam in the summer term

## Cell Signalling and its Applications in Disease and Therapeutics

<b>Course Title</b>	<b>Cell Signalling &amp; its Applications in Disease and Therapeutics</b>
<b>Course Organiser</b>	<b>Mike Titheradge</b>
<b>Term</b>	Autumn
<b>Credits</b>	15 credits
<b>Course description</b>	The aim of this course will be to discuss the major signalling pathways in cells and how perturbations of these can result in disease processes such as hypertension, cancer, type II diabetes and septic shock. The course will demonstrate how a knowledge of these pathways has led to the design and use of specific pharmacological agents to target these pathways for therapeutic intervention. The signalling pathways covered will include Ca <sup>2+</sup> , cyclic nucleotides, nitric oxide and guanylate cyclase, MAPK kinase pathways, PI-3-kinase and PKB, Jak/Stat pathways and integrins
<b>Assessment:</b>	2 hour Unseen Exam in the summer term.
<b>Reading List</b>	Cell Signalling (2nd Ed) Hancock, J.T. O.U.P. 2005; Molecular Biology of Cancer Pecorino, L. O.U.P. 2005

## Genomics

<b>Course Title</b>	<b>Genomics</b>
<b>Course Organiser</b>	<b>Sue Jones</b>
<b>Term</b>	Autumn
<b>Credits</b>	15 credits
<b>Course description</b>	This course will survey the common types of genomic and proteomic data including DNA and protein sequences, gene and protein structure, and interaction & expression data. The emphasis will be on the role of computer algorithms and databases in this area. The aims and methods of protein sequence analysis will be covered including analysis of homology, identification of motifs and domains, and sequence alignment methods. The distribution of data through public databases will be surveyed including data formats and end-user applications for manipulation and analysis. Students are expected to learn to access, manipulate and analyse data, and to demonstrate understanding of the structure and limits of these services
<b>Assessment:</b>	2 hour Unseen Exam 60% in the summer term, Coursework 40% consisting of Practical Report
<b>Reading List</b>	A Primer of Genome Science. Gibson & Muse. Published by Sinauer Associates, 2002 Bioinformatics. Orengo, Jones & Thornton. Published by Bios Scientific Publishers, 2003 Principles of Genome Analysis and Genomics. Primrose & Twyman. Published by Blackwell Publishing, 2003 Introduction to Bioinformatics: AM Iesk. Oxford 2005

## Immunology in Health and Disease

<b>Course Title</b>	<b>Immunology in Health and Disease</b>
<b>Course Organiser</b>	<b>Kathy Triantafilou</b>
<b>Term</b>	Autumn
<b>Credits</b>	15 credits
<b>Course description</b>	The aim of this course will be to discuss the mechanisms of immune recognition by the innate and acquired immune system and how failures of these responses can lead to disease. In particular, the course will focus on innate recognition as well as T-cell recognition via

	Major Histocompatibility Molecules (MHC). The course will demonstrate how failures of the immune system can lead to conditions such as allergies, hypersensitivity reactions, and autoimmunity, and how bacterial and viral pathogens can evade the immune system in order to cause disease.
Assessment:	2 hour Unseen Exam in the summer term
Reading List	Immunology, Kuby, 4th Edition; Immunobiology, Janeway and Travers

## Molecular Genetics

Course Title	<b>Molecular Genetics</b>
Course Organiser	<b>Felicity Watts</b>
Term	Autumn
Credits	15 credits
Course description	The course will cover the application of molecular genetics to the study of processes in model systems and higher eukaryotes. Particular topics will include cell cycle and checkpoint control, recombination and mating type switching in lower eukaryotes, gene mapping and cloning disease genes in higher eukaryotes and the production of transgenic animals.
Assessment:	2 hour Unseen Exam in the summer term

## Biotechnology, Innovation and Science Policy

Course Title	<b>Biotechnology, Innovation &amp; Science Policy</b>
Course Organiser	<b>Michael Hopkins / Mark Paget</b>
Term	Spring
Credits	15 credits
Course description	The aim of this course is to provide scientists with an understanding of how their skills may be used in society. The course explores the applications of biotechnology, its products and processes. It examines the mechanisms through which biotechnology is commercialised, such as university-industry links, spin-off firms and corporate alliances. The role of regulatory and ethical debates in the development of biotechnology is also explored. Theoretical frameworks are presented to encourage the analysis of the social, economic and political issues raised by developments in biotechnology, as well as to aid the understanding of the forces that

	have been important in moderating its growth.
Assessment:	Coursework only consisting of Essay (80%), Presentation (20%)

## Endocrinology and Disease

<b>Course Title</b>	<b>Endocrinology &amp; Disease</b>
Course Organiser	Mike Titheradge
Term	Spring
Credits	15 credits
Course description	The aim of this course is discuss the structure, synthesis, secretion and metabolic effects of the major classes of hormones (e.g. insulin, glucagon, thyroid hormones, glucocorticoids, sex steroids, catecholamines, the renin-angiotensin system, growth hormone and prolactin). Emphasis will be placed upon how imbalances in the synthesis and secretion of these hormones leads to disease states, their symptoms and treatment (e.g. diabetes mellitus, Addisons Disease, Cushing's Syndrome, Grave's disease, hypothyroidism, acromegally and dwarfism, hypertension).
Assessment:	2 hour Unseen Exam in the summer term

## Protein Form and Function

<b>Course Title</b>	<b>Protein Form &amp; Function</b>
Course Organiser	Darren Thompson
Term	Spring
Credits	15 credits
Course description	Protein Form and Function will provide a sense of how protein structures are related to each other and of how these structures relate to protein function. It also equips the student with the necessary knowledge and skills to allow them to learn about and appreciate this class of molecule. This course covers aspects of protein structure in detail and introduces computational and experimental techniques that are essential for studying proteins and provides the basis for the in depth discussion of more topical issues such as protein engineering and design, protein folding, chaperones and protein folding diseases.
Assessment:	2 hour Unseen Exam in the summer term
Reading List	Proteins – Structure and Function. Whitford. Published by Wiley

## BSc Neuroscience: Psychology Courses

[Click here for general information regarding BSc Neuroscience](#)

For details see Psychology teaching pages, we recommend consulting briefly with **Pete Clifton** before confirming choices. Email: [p.g.clifton@sussex.ac.uk](mailto:p.g.clifton@sussex.ac.uk)

Courses we recommend are listed below, but you may find additional material of interest at.

<http://www.sussex.ac.uk/psychology/1-3-1.html> (Not all courses will run in 2010-11)

### Autumn Term

Applications of learning theory

Cognitive neuropsychology

Psychology of appetite

Biological bases of mental disorders

Psychobiology of addiction

### Spring Term

Auditory cognition.

Clinical and abnormal psychology

Health psychology

Psychobiology of cognitive aging and dementia

Psychobiology of motivation and emotion

Sensory & Motor Functions of the Nervous System

## BSc Neuroscience: Neuroscience Projects

[Click here for general information regarding BSc Neuroscience](#)

The project constitutes 25% of the credit for the year, and it is important to choose a suitable topic. The Biology Dept. publishes a list of projects, which is available late in the Spring term. Students then ballot for projects, and are not guaranteed their first choice. In practice however people normally secure their first or second choice and we will ensure that there are sufficient Neuroscience projects. It may well also be possible to take project in the Dept of Psychology, where there is much Research highly relevant to the Neuroscience degree. For those who do not want to do laboratory experiments there are various suitable types of project, and we are happy to talk about this possibility.

A fair idea of the areas in which projects lie can be found by looking at faculty research interests on the Department web pages. Major areas of interest are in hearing, mechanisms of learning, control of gene expression in the nervous system, behavioural neuroscience of mammals, birds and invertebrates. There is also a major interest in developmental neuroscience.

We are happy to arrange for work done outside the Department, for example in a clinical setting or BSMS research labs, to form all or part of a project. Assessment will however be made by Biology Department faculty in consultation with those who directly supervised the work

## BSc Experimental Psychology

**Contact: Dr Sarah King**  
 School of Psychology  
 University of Sussex  
 Email: [S.L.King@sussex.ac.uk](mailto:S.L.King@sussex.ac.uk)  
 Telephone: 01273 873190

The course website <http://www.sussex.ac.uk/psychology/1-2-13.html> has further information on the programme, individual courses and the method of application.

<b>Title of degree to be obtained</b>	<b>BSc Experimental Psychology</b>
<b>Institution awarding degree</b>	<b>University of Sussex</b>
<b>Brief description of course</b>	<p>The Experimental Psychology intercalated BSc degree involves taking core modules in cognitive psychology (2 modules) and either social psychology OR developmental psychology. In addition, students choose 2 optional modules from the 3rd year psychology courses: one in the autumn term and one in the spring term.</p> <p>Finally, a large part of this degree is the research project, which students do throughout the year and will provide students with excellent training for the 4th year project done as part of the BSMS medical degree. In principle, students can do their psychology project with any of the Psychology teaching staff, depending upon availability.</p> <p>Example of course make up and content for 2007/8:  <a href="http://www.sussex.ac.uk/psychology/syllabus/2007/C8013U.html">http://www.sussex.ac.uk/psychology/syllabus/2007/C8013U.html</a></p>
<b>Compulsory modules (number and names)</b>	<ol style="list-style-type: none"> <li>1. Cognitive Psychology 1</li> <li>2. Cognitive Psychology 2</li> <li>3. Research Project</li> </ol>
<b>Optional modules (number to be taken, and names)</b>	<p>3 options as follows:</p> <ol style="list-style-type: none"> <li>1. Developmental OR Social Psychology</li> </ol> <p>Plus 2 final year psychology option courses to be chosen from a range of available courses.</p>
<b>Mode(s) of assessment</b>	Exams & coursework

## BSc Pharmacological Sciences

Contacts:

**Dr Mark Yeoman**

School of Pharmacy and Biomolecular Sciences

University of Brighton

Cockcroft Building

Lewes Road

Brighton

BN2 4GJ

Telephone: 01273 642078/2085

Fax: 01273 679333

Email: [m.s.yeoman@brighton.ac.uk](mailto:m.s.yeoman@brighton.ac.uk)

**Dr Stuart James**

School of Pharmacy and Biomolecular Sciences

University of Brighton

Cockcroft Building

Lewes Road

Brighton

BN2 4GJ

Telephone: 01273 642042

Fax: 01273 67933

Email: [s.l.james@brighton.ac.uk](mailto:s.l.james@brighton.ac.uk)

Title of degree to be obtained	<b>BSc(Hons) Pharmacological Sciences</b>
Institution awarding degree	<b>University of Brighton</b>
Brief description of course	The aims of the programme are: to provide the skills, knowledge and understanding to enable students to rigorously design, execute, analyse and interpret a pharmacological research project and to provide them with an appreciation of the rationale behind drug development programmes, therapeutic regimes and the consequences of drug therapy. to provide the skills to enable the

	successful design, implementation, analysis, and presentation of a pharmacological research project.
Compulsory modules (number and names)	<p>PY344: Drug Discovery</p> <p>PY345: Drug Profiling</p> <p>PY346: Research Methodology</p> <p>PY347: Pharmacology</p> <p>PY425: Project</p>
Optional modules (number to be taken, and names)	<p>Students must take 4 optional modules from the list below. Certain restrictions apply so students should contact the course leader before making their choices.</p> <p>PYM01: Current topics in infection</p> <p>PYM02: Psychopharmacology</p> <p>PYM03: Ion channel pharmacology</p> <p>PYM04: Specialised clinical practice</p> <p>PYM05: Diabetes Mellitus</p> <p>PYM06: Oxidative stress and disease</p> <p>PYM07: Pharmacogenomics</p> <p>PYM08: Pharmacology of Neuronal Ageing</p> <p>PYM09: Pharmaceutical Care of Surgical Patients</p> <p>CHM03: Medicinal plants and their uses.</p>
Mode(s) of assessment	<p>PY344: Coursework essay (3000 word)</p> <p>PY345: Coursework essay (3000 word)</p> <p>PY346: Presentation and grant application</p> <p>PY347: SAQ/EMQ examination</p> <p>PY425: Poster presentation, viva voce examination and written report.</p> <p>PYM01-09 and CHM03 generally a 2 hour written examination. Occasionally some modules have coursework components.</p>

## Intercalated Degree in Global Health

With increasing world travel, globalisation, and resultant changing patterns in global disease epidemiology, it is increasingly necessary for medical students today to be aware of global health (GH) issues. An understanding of healthcare systems, the interplay between poverty, health and development, and the impact of conflict and migration on health demographics, both internationally and also locally is essential, even for the student who has no intention of ever practicing medicine outside the UK. In response to the strong demand for increased coverage of GH within the medical school, BSMS is pleased to announce that it plans to offer an intercalated degree in GH from 2010/11. An exciting curriculum is under development that covers the important GH issues, but with a special BSMS flavour drawing on our strengths in infectious diseases, tropical medicine, epidemiology, ethics and medical anthropology. We will also work closely with related departments in both parent universities and the Institute of Development Studies (IDS).

It is envisaged that the degree will include core modules on health, poverty and development, a choice of modules covering specific health topics, and a project. There will also be opportunities to link the iBSc with your elective. For further information please contact **Professor Melanie Newport** ([m.j.newport@bsms.ac.uk](mailto:m.j.newport@bsms.ac.uk)) or new clinical lecturer, details to follow.

## Appendix 1 – Core Research Prize and Bursaries

See the following pages for more information.

### Core Research Prize 2009

Core is offering a £1,000 award for study undertaken by a clinical or basic science researcher at the end of their first period of full time research for a higher degree. The research should have been completed in the last three years. The prize will be awarded on the basis of an essay of circa 1,000 words describing the research. A list of relevant full publications and abstracts by the applicant should be appended.

The work should be the subject of at least one abstract submitted for possible inclusion to the 2010 British Society of Gastroenterology Scientific Meeting. Applicants should include copies of submitted BSG abstracts with their application.

The deadline for applications is **4pm on 1st December 2009**. For an application form and further information please contact Sarah Morris-Davies at [sarah@corecharity.org.uk](mailto:sarah@corecharity.org.uk) or call 020 7486 0341.

### Core Announces Falk Pharma Awards

With the unrestricted financial support of Dr Falk Pharma UK, Core is pleased to invite applications for a number of new bursaries and awards for 2010.

#### One research essay prize

£1,000 essay prize for the best dissertation on personally undertaken research in an area relevant to gastroenterology by a medical student on a BSc or MRes course during 2008/09. The prize will be awarded at the British Society of Gastroenterology Scientific Meeting in March 2010 and the winner will be encouraged to submit a poster of their work to the Society. The deadline for applications is 5.00pm on 11th January 2010.

#### Six research bursaries

£1,000 bursaries are available for medical students taking a fulltime science degree (BSc/MRes/MBPhD) in an area relevant to gastroenterology in 2010/11. Bursaries will be awarded once the successful applicant's place on the course has been confirmed. The deadline for applications is 5.00pm on 11th January 2010.

For further information please contact Sarah Morris-Davies at Core on 020 7486 0341 or [sarah@corecharity.org.uk](mailto:sarah@corecharity.org.uk)

## Appendix 2 – Institute of Medical Ethics Grants and Awards

### INSTITUTE OF MEDICAL ETHICS - Grants and Awards

Professor Margaret Lloyd, Chair of the Institute of Medical Ethics Grants and Awards Committee is pleased to announce that in 2010 the Institute of Medical Ethics offers, apart from the Student Elective Bursaries, two new kinds of awards for medical students: bursaries for internships and scholarships for students wishing to do an intercalated degree in medical ethics or an allied subject. In addition, institutional grants of up to £500 will be considered to support meetings or other activities of which medical ethics is a substantial component.

These awards are summarised below:

#### **INSTITUTE OF MEDICAL ETHICS** **Grants and Awards offered by the Institute of Medical Ethics**

##### **Medical Student Electives**

Eight bursaries of up to £600 each to support Medical Student Electives, or exceptionally Special Study Modules, on issues in medical ethics. Medical students, jointly with their supervisor, are invited to apply by January 31st 2010. Successful applicants will be informed by March 31st 2010.

##### **Medical Student Internships**

Three bursaries of up to £600 each to support Medical Ethics Internships. Medical students, jointly with their supervisor, are invited to apply by January 31st 2010. Successful applicants will be informed by March 31st March 2010.

##### **Medical Student Intercalated Scholarships**

Two scholarships of up to £2,000 each to support students who wish to do an intercalated degree in Medical Ethics. Medical students, jointly with their supervisor, are invited to apply by March 19th 2010. Successful applicants will be informed by May 14th 2010.

##### **Institutional Grants**

Grants of up to £500 will be considered to support meetings or other activities of which medical ethics is a substantial component and which promote understanding of ethical issues related to health care. Student applications must be made jointly with a member of staff.

All application forms and guidelines may be downloaded from the IME website  
[www.instituteofmedicalethics.org](http://www.instituteofmedicalethics.org)

For further information please contact:

Mrs M Bannatyne, IME Bursaries Administrator , St Chloe, The Avenue, Old Bussage, Gloucestershire GL6 8AT *Email:* [contact@instituteofmedicalethics.org](mailto:contact@instituteofmedicalethics.org)

The application and guidance notes for each award can be downloaded from our website

[www.instituteofmedicalethics.org](http://www.instituteofmedicalethics.org) <http://www.instituteofmedicalethics.org>

Please note that each award has its own application form and that closing dates differ.

For further enquiries please contact:

Maureen Bannatyne

The Institute of Medical Ethics is a company limited by guarantee, registered in England & Wales number 985158 and a registered charity number 261876.

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Website: [www.instituteofmedicalethics.org](http://www.instituteofmedicalethics.org) <http://www.instituteofmedicalethics.org>

## **Appendix 3 – NHS Bursaries and your Intercalated Year**

There is lots of information on the NHS student bursaries website:

<http://www.nhsbsa.nhs.uk/students>

## **Appendix 4 – MSc Courses**

We are not actively promoting any MSc courses at present, and local courses are not listed in the handbook of local courses recommended by BSMS as linked to us for the intercalated year. Students can apply for MSc courses at the Institute of Postgraduate Medicine at BSMS, but they are not primarily designed for pre-qualification professionals and at present there is no standardised form of funding available to support students for them.

If a student wishes to apply for any MSc (here or elsewhere) they are free to do so. (Students at medical schools where intercalation is after year 2 do not have the option of an MSc as they will not generally be considered as having reached a BSc, but as we intercalate after year 3 MScs may be preferred).

We strongly recommend that any student considering an MSc carefully considers the suitability of the course at this time in their career, in close collaboration with their Clinical Academic Tutor and any other mentors.