

School of Psychology & Neuroscience

Neuroscience (PN) modules

PN3312 Neuropharmacology			
SCOTCAT Credits:	20	SCQF Level 9	Semester 2
Academic year:	2018/9		
Planned timetable:	Lectures: 11.00 am Mon, Tue and Wed Practicals: to be arranged.		
<p>This module assumes that students are familiar with the material covered in BL2101. 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 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 cardiovascular 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. These practical sessions aim to help students build a working knowledge of drug names and actions as well as pharmacological concepts.</p>			
Pre-requisite(s):	Before taking this module you must pass at least 2 modules from {BL2301, BL2302, BL2305, BL2306}		
Anti-requisite(s)	You cannot take this module if you take BL3312		
Learning and teaching methods of delivery:	Weekly contact: Lectures and tutorials: 27 hours in total, Usually 3 lectures or tutorials (x 11 weeks) Practicals: 2 x 3 hours during the semester.		
	Scheduled learning: 33 hours	Guided independent study: 167 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%		
	As used by St Andrews: 3-hour Written Examination = 60%, Coursework = 40%		
Re-assessment pattern:	3-hour Written Examination = 100%		
Module teaching staff:	Dr A Butler, Dr G Doherty, Dr W Li, Dr G B Miles, Dr R Ramsay, Dr K Spencer, Dr L Aitken		

PN3313 Neuroscience			
SCOTCAT Credits:	20	SCQF Level 9	Semester 1
Academic year:	2018/9		
Planned timetable:	Lectures: 12.00 am Mon, Tue and Wed Practicals: to be arranged.		
<p>This module covers biochemical, cellular and behavioural aspects of the nervous system in health and disease. 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 also examined. 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, and mechanisms of neuronal cell loss.</p>			
Pre-requisite(s):	Before taking this module you must pass BL2301 and pass BL2305		
Anti-requisite(s)	You cannot take this module if you take BL3313		
Learning and teaching methods of delivery:	Weekly contact: 29 hours of lectures or tutorials in total, 3 x 3-hour practicals and 4 hours of labs during the semester.		
	Scheduled learning: 42 hours	Guided independent study: 158 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%		
	As used by St Andrews: 3-hour Written Examination = 60%, Coursework = 40%		
Re-assessment pattern:	3-hour Written Examination = 100%		
Module coordinator:	Prof G B Miles		
Module teaching staff:	Prof F Gunn-Moore, Prof K Sillar, Dr S Pulver, Dr G Miles, Dr W Heitler, Dr W Li, Dr G Doherty		

Psychology & Neuroscience - Honours Level - 2018/9 - August - 2018

PN3321 Advanced Critical Analysis Reading Party				
SCOTCAT Credits:	10	SCQF Level 9	Semester	Summer Holiday before start of session
Academic year:	2018/9			
Planned timetable:	To be arranged			
An introductory residential module to Honours study for students studying Neuroscience, Psychology and Biology degrees held at the Burn (or equivalent location) between the resit diet and the start of semester 1. This module introduces students to the skill of critically analysing scientific literature and the methodology behind preparing research proposals. Students will work in groups to analyse and assess a grant proposal and present their ideas to a mock research grant panel. In response to detailed feedback students can improve their skills and finally submit an extended referees report on a real grant proposal.				
Learning and teaching methods of delivery:	Weekly contact: 5 day residential course, 8 hours per day			
	Scheduled learning: 16 hours		Guided independent study: 84 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 0%, Practical Examinations = 0%, Coursework = 100%			
	As used by St Andrews: Coursework = 100%			
Re-assessment pattern:	Coursework = 100%			
Module coordinator:	Prof G B Miles			
Module teaching staff:	Dr G Miles, Dr S Pulver , Dr E Robbins, Dr G Doherty, Dr W Li, Dr M Zwart, Prof K Sillar			

PN4230 Neurodegeneration and Aging				
SCOTCAT Credits:	15	SCQF Level 10	Semester	1
Academic year:	2018/9			
Availability restrictions:	BSc Hons Neuroscience students have priority on this module			
Planned timetable:	Seminars: 3.00 pm - 4.00 Mon, 1.00 pm - 2.00 pm Thu (weeks 1-5); Seminars: 12.00 pm - 2.00 pm Thu (weeks 7 and 9-11); Labs: 2.00 pm - 5.00 pm Tues, Wed (week 8)			
In this module, students will develop a detailed understanding of molecular neuroscience. Work will focus at the biochemical and molecular level, so that detailed knowledge of signalling pathways will be gained. The module concentrates on three key areas relating to neurodegenerative processes. 1) How neurons stay alive 2) The aging nervous system: Changes that can 'prime' neurons for degeneration, degenerative disorders - risks, pathology, treatments. Including a practical session 3) How the nervous system responds to neurodegenerative diseases, with particular focus on Alzheimer's disease.				
Pre-requisite(s):	Before taking this module you must pass PN3313 and pass BL3303			
Anti-requisite(s)	You cannot take this module if you take BL4230			
Learning and teaching methods of delivery:	Weekly contact: Seminars: up to 2 hours per week (to a total of 18 hours) and 2 x 3-hour practicals during the semester.			
	Scheduled learning: 24 hours		Guided independent study: 126 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 66%, Practical Examinations = 0%, Coursework = 34%			
	As used by St Andrews: 2-hour Written Examination = 66%, Coursework = 34%			
Re-assessment pattern:	2-hour Written Examination = 100%			
Module teaching staff:	Prof F Gunn-Moore, Dr G Doherty, Dr M Andrews			

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PN4231 Neuromodulation				
SCOTCAT Credits:	15	SCQF Level 10	Semester	2
Academic year:	2018/9			
Availability restrictions:	BSc Hons Neuroscience students have priority on this module			
Planned timetable:	Lectures: 11.00 am - 12.00 noon Tue and 10.00 am - 11.00 am Fri. Practicals to be arranged.			
	<p>Until recently the nervous system was viewed as a black and white world in which neuronal networks carried out tasks using fast chemical synaptic transmission to produce an appropriate network output. However the output of neuronal networks is not fixed but instead is modifiable under different behavioural or developmental circumstances. A major source of flexibility in the output neuronal networks derives from neuromodulation; a process in which the basic operation of the networks remains the same but the strengths of synaptic connections and the integrative electrical properties of neurons in the networks are changed by the actions of a range of neuromodulators. This module explores the diverse range of neuromodulatory mechanisms and outlines their importance in information processing in the nervous system.</p>			
Pre-requisite(s):	Before taking this module you must pass PN3313			
Anti-requisite(s)	You cannot take this module if you take BL4231			
Learning and teaching methods of delivery:	Weekly contact: 2 seminars. Scheduled learning: 24 hours Guided independent study: 126 hours			
Assessment pattern:	As defined by QAA: Written Examinations = 50%, Practical Examinations = 25%, Coursework = 25% As used by St Andrews: 1.5-hour Written Examination = 50%, Coursework = 50%			
Re-assessment pattern:	1.5-hour Written Examination = 100%			
Module coordinator:	Dr S Pulver			
Module teaching staff:	Dr S Pulver, Prof K Sillar, Dr G Miles, Dr W Li, Dr W Heitler			

PN4234 Synaptic Transmission				
SCOTCAT Credits:	15	SCQF Level 10	Semester	2
Academic year:	2018/9			
Availability restrictions:	BSc Hons Neuroscience students have priority on this module			
Planned timetable:	Lectures: 11.00 am - 12:30 pm Wed and 12.00 noon - 1.00 pm Fri. Practicals to be arranged.			
	<p>Extensive and versatile communication between nerve cells using special junctions called synapses endows the nervous system with many complex functions like learning and memory. This module will cover important recent progress in understanding the morphology and ultrastructure of synapses, neurotransmitter corelease and recycling mechanisms, retrograde signalling, synaptic plasticity, the role of glial cells and the development of neurotransmission. Some laboratory work will provide students with hands-on experience of advanced research methods.</p>			
Pre-requisite(s):	Before taking this module you must pass PN3313			
Anti-requisite(s)	You cannot take this module if you take BL4234			
Learning and teaching methods of delivery:	Weekly contact: A total of 6 x 1.5 hour seminars, 7 x 1 hour lectures and 2 x 3 hour practicals over 10 weeks Scheduled learning: 22 hours Guided independent study: 128 hours			
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 20%, Coursework = 20% As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	2-hour Written Examination = 100%			
Module coordinator:	Dr W Li			
Module teaching staff:	Dr W Li, Dr S Pulver, Dr G Miles			

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PN4235 Motoneurons: From Physiology to Pathology				
SCOTCAT Credits:	15	SCQF Level 10	Semester	1
Academic year:	2018/9			
Availability restrictions:	BSc Hons Neuroscience students have priority on this module			
Planned timetable:	Lectures : 2.00 pm - 3.00 pm Mon and 9.00 am - 10.30 am Fri. Practicals to be arranged.			
This module aims to provide in depth knowledge of key aspects of neuronal function and potential dysfunction by focussing on one of the most studied and best characterised classes of neurons in the central nervous system, motoneurons. The module will cover topics such as: the history of motoneurons in neuroscience research; the genetics controlling motoneuron development, the intrinsic electrical properties of motoneurons; synaptic inputs received by motoneurons; motoneuron recruitment; and motoneuron disease.				
Pre-requisite(s):	Before taking this module you must pass PN3313			
Anti-requisite(s)	You cannot take this module if you take BL4235			
Learning and teaching methods of delivery:	Weekly contact: 10 hours of seminars, 6 hours of lectures and 6 hours of practical over the semester.			
	Scheduled learning: 22 hours		Guided independent study: 128 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 60%, Practical Examinations = 0%, Coursework = 40%			
	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	2-hour Written Examination = 100%			
Module coordinator:	Prof G B Miles			
Module teaching staff:	Dr W Li, Prof K Sillar, Dr G Miles, Dr W Heitler			

PN4299 Neuroscience Research Project				
SCOTCAT Credits:	60	SCQF Level 10	Semester	Full Year
Academic year:	2018/9			
Availability restrictions:	Not automatically available to General Degree students			
Planned timetable:	To be arranged with the supervisor.			
This project will involve extensive laboratory or field research to investigate a defined problem broadly within biology, psychology, or neuroscience appropriate to the degree programme being studied by each student. The project will involve diligence, initiative and independence in pursuing the literature, good experimental design, good experimental and/or analytical technique either in the field or the laboratory, and excellent record keeping. The project will culminate in the production of a high-quality report that demonstrates a deep understanding of the chosen area of research. Students will be allocated to a member of staff within the School of Psychology and Neuroscience or the School of Biology who will guide and advise them in research activities throughout the academic year.				
Pre-requisite(s):	Before taking this module you must pass PN3312 and pass PN3313			
Anti-requisite(s)	You cannot take this module if you take BL4200 or take BL4201 or take PS4050 or take PS4299 or take PS4796 or take PS4797			
Learning and teaching methods of delivery:	Weekly contact: Meetings with supervisor			
	Scheduled learning: 33 hours		Guided independent study: 567 hours	
Assessment pattern:	As defined by QAA: Written Examinations = 0%, Practical Examinations = 35%, Coursework = 65%			
	As used by St Andrews: Practical Examination = 35%, Coursework = 65%			
Re-assessment pattern:	Practical Examination = 35%, Coursework = 65% re-assessment may include collecting further data			
Module teaching staff:	Individual Supervisors across the School of Psychology and Neuroscience or the School of Biology			