

Module Specification

Module Title Module Code
Credit Value Level Mode of Delivery Semester

Pre-requisite modules	Co-requisite modules	Overlapping modules
SBC222		

1) Content Description

Provide a description of the module, as it will appear in the Module Directory and on the Student Information System (approx. 70-80 words).

This module provides a survey of the molecular components and processes that modulate neurotransmission in the nervous system, support integration of environmental signals, and confer plasticity on neurons and nervous systems. Topics covered include: molecular mechanisms of learning and memory; role of neuropeptides and other neuromodulators; mechanisms by which drugs of abuse (e.g. cannabis) affect brain function; pharmacological approaches to psychiatric disorders; genetic and epigenetic mechanisms that support behavioural variation and adaptation.

2) Module Aims

Specify the aims of the module, i.e. the broad educational purposes for offering this module.

The first aim of Neuroscience: from Molecules to Behaviour will be to introduce the molecular components that confer plasticity on neurons and nervous systems, leading to higher functions of the brain such as learning, memory and cognition. The module will then consider how genes, environment and developmental factors interact to influence neuropsychiatric disease, social behaviour and personality.

Generic aims

- To facilitate acquisition of knowledge and understanding of selected topics in the field of neuroscience.
- To provide an introduction to the principles and applications of research techniques in neuroscience.
- To provide the foundations for postgraduate level studies in the field of neuroscience.
- To introduce students to neuroscience and neurogenetics research at QMUL.

3) Learning Outcomes

Identify the learning outcomes for this module, i.e. knowledge, skills and attributes to be developed through completion of this module. Outcomes should be referenced to the relevant [QAA benchmark statements](#) and the [Framework for Higher Education Qualifications in England, Wales and Northern Ireland \(2008\)](#). The [SEEC Credit Level Descriptors for Further and Higher Education 2003](#) and [Queen Mary Statement of Graduate Attributes](#) should also be used as a guiding framework for curriculum design.

Academic Content:	
A1	Knowledge and understanding of molecular and cellular mechanisms that can modulate the function of neural circuits, with particular focus on mechanisms of synaptic plasticity such as LTP and LTD.
A2	Knowledge and appreciation of how research on model organisms has improved our understanding of the neural basis of behaviour.
A3	Knowledge and understanding of mechanisms of action of drugs of abuse (e.g. cannabis, heroin).

A4	Knowledge and understanding of <i>evolutionarily conserved</i> genetic and neural mechanisms underlying behaviour.
A5	Knowledge and understanding of selected topics in neuroscience: e.g. Neuropeptides and social behaviour; courtship behaviour; schizophrenia, anxiety and fear; impact of genomics on molecular neuroscience and the study of behaviour.

Disciplinary skills - able to:	
B1	Enhance students' understanding of molecular signalling pathways underpinning many biomedical disciplines beyond the 'core' neuroscience of this module
B2	Students will also benefit from the multidisciplinary nature of contemporary neuroscience, with selected topics illustrating the importance of cutting-edge techniques from molecular biology to analysis of whole-animal behaviour

Attributes:	
C1	Extracting information from and recognizing controversies in the scientific literature
C2	Lab/computer workshops will develop data handling and presentation skills

4) Reading List

Provide an indicative reading list for the module. This should include key texts and/or journals but **should not** be an exhaustive list of materials.

The module is not tied to a single textbook, and selected readings, including papers from the primary literature, will be announced by the lecturers. There are, however, some recommended texts which are indicated below

Recommended texts:

Kandel, E et al., (2012) Principles of Neural Science, 5th Edition, McGraw Hill

Purves, D et al., (2012) Neuroscience, 5th Edition, Sinauer

Nicholls, J et al., (2012) From Neuron to Brain, 5th Edition, Sinauer

Meyer, J and Quenzer, L., (2013) Psychopharmacology, 2nd Edition, Sinauer

Squire, L and Kandel, E. (2009) Memory: From Mind to Molecules, 2nd Edition, Roberts and Co.

5) Teaching and Learning Profile

Provide details of the method of delivery (lectures, seminars, fieldwork, practical classes, etc.) used to enable the achievement of learning outcomes and an indicative number of hours for each activity to give an overall picture of the workload a student taking the module would be expected to undertake. This information will form the Key Information Set for each undergraduate programme and will be used to populate the KIS widget found on the QMUL programme information pages. More information can be found [online](#) about KIS. You may also wish to refer to the [QAA guidance on contact hours](#) when completing this section.

Activity Type	KIS Category	Time Spent (in hours)
Lecture	Scheduled	22
Practical classes and workshops	Scheduled	3
	Total	25

Specify the total module notional study hours. This should be a total of the hours given for each activity. The notional study hours for each academic credit point is 10. A 15 credit point module therefore represents 150 notional study hours.

Activity Type	Total Time Spent (in hours)	Percentage of Time Spent
Scheduled learning and teaching	25	17
Placement	0	0
Independent Study	125	83
Total	150	100

Use the information provided in the box above to specify the total time spent and the percentage time spent in each category of teaching and learning activity.

6) Assessment Profile

Provide details of the assessment methods used to assess the achievement of learning outcomes.

Description of Assessment	Assessment Type	KIS Category	Duration/Length	Percentage Weighting	Final element of assessment	Qualifying Mark
Written Examination	Examination	Written Exam	3 Hours	80%	Yes	
Coursework	Written Assessment	Coursework		20%	No	

Final element of assessment: The assessment that takes place last. **There should normally be only one element of assessment marked as final unless two assessment or submission dates occur on the same day.**

Qualifying mark: A specified minimum mark that must be obtained in one or more elements of assessment in order to pass a module. **This is in addition to, and distinct from, the requirement to achieve a pass in the module mark to pass the module.**

Reassessment

Provide details of the reassessment methods used, specifying whether reassessment is either standard reassessment or synoptic reassessment.

- Standard Reassessment
 Synoptic Reassessment

Synoptic reassessment details (if you have indicated synoptic reassessment above, please give details)		
Brief Description of Assessment	Assessment Type	Duration/Length of Examination/ Coursework
Resit Examination	Written Exam	3 Hours