

Programme Specification

Neuroscience (2020-21)

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

Awarding Institution	University of Southampton
Teaching Institution	University of Southampton
Mode of Study	Full-time
Duration in years	1
Accreditation details	None
Final award	Master of Science (MSc)
Name of award	Neuroscience
Interim Exit awards	Postgraduate Certificate in Higher Education Postgraduate Diploma in Higher Education
FHEQ level of final award	Level 7
UCAS code	
Programme code	8161
QAA Subject Benchmark or other external reference	Biosciences 2015
Programme Lead	James Dillon

Programme Overview

Brief outline of the programme

The programme builds on the existing Integrated Neuroscience Masters with its research-focused neuroscience content that allows progressive specialisation in the field. The Masters in Neuroscience post-graduate degree will offer a balanced programme where students will gain the relevant skills and knowledge required for a career in Neuroscience.

Modules in advanced human neuroanatomy, cellular and molecular neuroscience and advanced neuroscience workshops will form the key pillars of the taught components of this programme. Interactive experimental workshops will expose students to the extensive Neuroscience expertise in Southampton. Workshops may include neuro-drug discovery, model organisms in neurological disease, dementia research including iPSC-models and neuropathological studies, neural networks, behavioural neurosciences, cell and molecular neurobiology and interdisciplinary neuroscience. Alongside students will undertake an individual extended research-based project, in a research lab currently conducting cutting-edge neuroscience research. Research spans normal physiological function (such as circadian biology, aging processes and synaptic physiology) to neurodegenerative disease (such

as dementia research, neuroinflammation, translational research). Additionally there will be a variety of optional modules on offer including neuropharmacology, neurodegeneration, pharmacology and skills-based modules. Teaching will be conducted in both traditional lecture-style groups as well as smaller interactive workshop-based groups and practicals, led by both UoS research active neuroscientists, as well as external invited experts in the field. Throughout the programme, students will undertake independent reading both to supplement and consolidate the taught material and to broaden their knowledge and understanding of neuroscience. Through assessments, students will be taught to critically assess research papers, synthesize evidence based written scientific arguments and disseminate data through poster and oral presentations.

Your contact hours will vary depending on your module/option choices. Full information about contact hours is provided in individual module profiles.

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Learning and teaching

Eight taught modular units are taken, typically four in semester one and four in semester two. Of these, 4 are compulsory modules (one of these, Advanced Neuroscience, is equivalent to 2 modules and 15 ECTS) and 3 are optional modules. Some of the modules comprise of lectured units, consisting of two lectures a week and may also have a practical component (the nature of which differs depending on the module). Some of the compulsory modules, have extended workshop formats supplemented by elements involving interactions between small groups of students and academics. Additionally, some modules take the format of research seminars, dominated by the research project and guided study. The contribution of components of in-course assessment to the final mark will vary from module to module. In semester 3, a lab-based research project, equivalent to 4 modules will be undertaken. This culminates in a manuscript-style written dissertation and oral/poster presentation at the annual Southampton Neuroscience Group conference at the end of the academic year.

Assessment

Examinations are held in the two weeks after each semester, in January and June. An equal weighting of 1:1:1 for the grades obtained in each of the three semesters will be used to calculate the exit grade for the Masters Neuroscience programme. Marks for semester 1 and 2 will be those obtained in the taught modules (60 ECTS) and those obtained in semester 3 will be the project (30 ECTS).

Special Features of the programme

The Masters in Neuroscience provides a flexible programme with which to pursue your interest in Neuroscience to the frontiers of our knowledge in this discipline. Modules undertaken in semester 1 and 2 provide you with a solid foundation in Neuroscience and important related disciplines needed to put the specific information in context. You will also develop a solid foundation and understanding of cutting edge Neuroscience experimental expertise. Throughout the programme you will have the opportunity to develop your own interests in particular fields of neuroscience research supported by a range of neurosciences courses. These courses are taught by researchers at the forefront of their disciplines from within the Centre and from the wider university, including the faculty of Medicine and Institute of Life Sciences. There is also the opportunity to conduct an original research project. The analytical skills acquired will be further honed in semester 3 where you have the opportunity to undertake an extended research projects in the Centres own research laboratories and attend modules which are research led, drawing extensively on research seminars given throughout the University. The analytical and practical skills acquired during this programme provide a strong foundation for a broad range of careers.

Please note: As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student's period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our [Disclaimer](#) to see why, when and how changes may be made to a student's programme.

Programmes and major changes to programmes are approved through the University's [programme validation process](#) which is described in the University's [Quality handbook](#).

Educational Aims of the Programme

The aims of the programme are to: Neuroscience is the study of all aspects of the nervous system, from the molecular to behavioural level, and is addressed in the context of the physiology and pathology of the whole organism. Graduates in Neuroscience are needed to help address key challenges for society such as neurological and psychological conditions, as well as to improve fundamental understanding of brain function. Graduates are also well qualified to go on to a variety of areas of employment. In Southampton you will undertake a balanced programme where you will gain the relevant skills and knowledge required for a career in this subject area.

Programme Learning Outcomes

Having successfully completed this programme you will be able to demonstrate knowledge and understanding of:

Learning Outcomes

- LO1. demonstrate a comprehensive knowledge and systematic understanding of the principles of neuroanatomy and neurophysiology and its interactions with other systems in the body
- LO2. appreciate how dysfunction and degeneration in the structure and function of the nervous system underpins neurological and neurodegenerative disease
- LO3. demonstrate a knowledge of neuronal and glial function in physiological and pathological states
- LO4. demonstrate knowledge of cutting edge experimental techniques and their use in Neuroscience research
- LO5. critically analyse and evaluate published scientific articles and appreciate their contribution to current understanding in general and specific neuroscience research areas
- LO6. synthesize and formulate scientific arguments and present them in recognized written scientific formats.
- LO7. present scientific arguments and/or data orally in a logical and succinct manner to both scientific and lay audiences
- LO8. a detailed knowledge and critical understanding of a key research area with Neuroscience gained through independent study
- LO9. carry out, with supervision, an independent original scientific project in an area of Neuroscience research.
- LO10. evaluate and present scientific data obtained demonstrating proficiency in use of statistical tests
- LO11. become proficient in carrying out searches in literature databases and be able to use appropriate referencing software
- LO12. appreciate the importance of scientific method, enquiry and ethical responsibility when conducting scientific research
- LO13. demonstrate an ability to conduct self-directed and self-motivated independent study

Programme Structure

The programme structure table is below:

Information about pre and co-requisites is included in individual module profiles.

Part 1 (Year 1)

Code	Module Title	ECTS	Type
BIOL6084	Advanced Neuroscience 2020-21	15	Compulsory
BIOL6035	Cellular and Molecular Neuroscience 2020-21	7.5	Compulsory
BIOL6053	Current Research 2020-21	7.5	Compulsory
BIOL6078	Structure and Function of the Nervous System 2020-21	7.5	Compulsory

Part 1 (Year 1) Optional Modules

Select 3 modules from the following

Code	Module Title	ECTS	Type
BIOL6075	Biological Optical Imaging 2020-21	3.75	Optional
BIOL6023	Cellular Signalling in Health and Disease 2020-21	7.5	Optional
BIOL6022	Molecular Pharmacology 2020-21	7.5	Optional
BIOL6045	Neurodegenerative Disease 2020-21	7.5	Optional
BIOL6036	Neuropharmacology of CNS Disorders 2020-21	7.5	Optional
BIOL6082	Skills in Biomolecular NMR 2020-21	3.75	Optional
BIOL6077	Skills in Molecular Bioscience 2020-21	3.75	Optional

BIOL6083	Skills in Optical Spectroscopy 2020-21	3.75	Optional
BIOL6034	Systems Neuroscience 2020-21	7.5	Optional

Part 1 (Year 2)

Code	Module Title	ECTS	Type
BIOL6092	MSc Neuroscience Research Project 2020-21	30	Compulsory

Progression Requirements

The programme follows the University's regulations for [Progression, Determination and Classification of Results: Postgraduate Master's Programmes](#). Any exemptions or variations to the University regulations, approved by AQSC are located in [section VI of the University Calendar](#).

Support for student learning

There are facilities and services to support your learning some of which are accessible to students across the University and some of which will be geared more particularly to students in your particular Faculty or discipline area.

The University provides:

- library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
- high speed access to online electronic learning resources on the Internet from dedicated PC Workstations onsite and from your own devices; laptops, smartphones and tablet PCs via the Eduroam wireless network. There is a wide range of application software available from the Student Public Workstations.
- computer accounts which will connect you to a number of learning technologies for example, the Blackboard virtual learning environment (which facilitates online learning and access to specific learning resources)
- standard ICT tools such as Email, secure filestore and calendars.
- access to key information through the MySouthampton Student Mobile Portal which delivers timetables, Module information, Locations, Tutor details, Library account, bus timetables etc. while you are on the move.
- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library.
- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support and counselling. Support includes daily Drop In at Highfield campus at 13.00 – 15.00 (Monday, Wednesday and Friday out of term-time) or via on-line chat on weekdays from 14.00 – 16.00. Arrangements can also be made for meetings via Skype.
- assessment and support (including specialist IT support) facilities if you have a disability, long term health problem or Specific Learning Difficulty (e.g. dyslexia).
- the Student Services Centre (SSC) to assist you with a range of general enquiries including financial matters, accommodation, exams, graduation, student visas, ID cards
- Career and Employability services, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV
- Other support that includes health services (GPs), chaplaincy (for all faiths) and 'out of hours' support for students in Halls and in the local community, (18.00-08.00)
- A Centre for Language Study, providing assistance in the development of English language and study skills for non-native speakers.

The Students' Union provides

- an academic student representation system, consisting of Course Representatives, Academic Presidents, Faculty Officers and the Vice-President Education; SUSU provides training and support for all these representatives, whose role is to represent students' views to the University.
- opportunities for extracurricular activities and volunteering

- an Advice Centre offering free and confidential advice including support if you need to make an academic appeal
- Support for student peer-to-peer groups, such as Nightline.

Methods for evaluating the quality of teaching and learning

You will have the opportunity to have your say on the quality of the programme in the following ways:

- Completing student evaluation questionnaires for each module of the programme.
- Acting as a student representative on various committees, e.g. Staff/Student Liaison Committees, School Programmes Committee OR providing comments to your student representative to feedback on your behalf.
- Serving as a student representative on Faculty Scrutiny Groups for programme validation.
- Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group.

Further details on the University's quality assurance processes are given in the [Quality Handbook](#).

Career Opportunities

There is potential for a variety of transferrable skills to be incorporated into the structure of course and careers/employability activities can easily be included. The inherent attendance to a national conference already affords networking and employability opportunities that can be further enhanced with focused workshops and careers talks within programme. Some work-packages that are to be offered (in advanced neurosciences, a compulsory module) are in work related areas such as drug design and discovery, biosciences communication and biosciences education.

External Examiner(s) for the programme

Name: Professor Gavin Woodhall - Aston University

Students must not contact External Examiner(s) directly, and external examiners have been advised to refer any such communications back to the University. Students should raise any general queries about the assessment and examination process for the programme with their Course Representative, for consideration through Staff: Student Liaison Committee in the first instance, and Student representatives on Staff: Student Liaison Committees will have the opportunity to consider external examiners' reports as part of the University's quality assurance process.

External examiners do not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact their Personal Academic Tutor in the first instance.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information can be found in the programme handbook.

Appendix 1:

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. In addition to this, students registered for this programme also have to pay for:

Additional Costs

Type	Details
Replacing lost student ID cards	You must pay for the cost of replacing student ID card if it is lost.

In some cases you'll be able to choose modules (which may have different costs associated with that module) which will change the overall cost of a programme to you. Details of such costs will be listed in the Module Profile. Please also ensure you read the section on additional costs in the University's Fees, Charges and Expenses Regulations in the University Calendar available at www.calendar.soton.ac.uk.