

## Programme Specification: Undergraduate

### For students starting in Academic Year 2018/2019

#### 1. Course Summary

<b>Names of programme(s) and award title(s)</b>	BSc (Hons) Neuroscience BSc (Hons) Neuroscience with International Year (see Annex A for details) BSc (Hons) Neuroscience with Work Placement Year BSc (Hons) Studies in Neuroscience BSc (Hons) Studies in Neuroscience with International Year BSc (Hons) Studies in Neuroscience with Work Placement Year
<b>Award type</b>	Single Honours
<b>Mode of study</b>	Full time
<b>Framework of Higher Education Qualification (FHEQ) level of final award</b>	Level 6
<b>Duration</b>	3 years 4 years if an Applied Life Sciences Placement or International Year is included
<b>Location of study</b>	Keele University – main campus
<b>Accreditation (if applicable)</b>	All routes, excluding the ‘Studies in’ routes, are accredited by the Royal Society of Biology – for further details see Section 12
<b>Regulator</b>	Office for Students (OfS)
<b>Tuition Fees</b>	<b>UK/EU students:</b> Fee for 2018/19 is £9,250*  <b>International students:</b> Fee for 2018/19 is £15,480**  The fee for the international year abroad is calculated at 15% of the standard year fee  The fee for the placement year is calculated at 20% of the standard year fee
<b>Additional Costs</b>	Refer to section 18

\* These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

\*\* We reserve the right to increase fees in subsequent years of study by an inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

**How this information might change:** Please read the important information at <http://www.keele.ac.uk/student-agreement/>. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.

## **2. What is a Single Honours programme?**

The Single Honours programme described in this document allows you to focus more or less exclusively on Neuroscience. In keeping with the subject's interdisciplinary nature, students learn how genetics, physiology and molecular biology become an essential part of understanding how the brain and nervous system works. Overall, the course enables you to gain, and be able to demonstrate, a distinctive range of graduate attributes.

## **3. Overview of the Programme**

The Neuroscience programme at Keele provides students with a strong grounding in the key principles of neuroanatomy, neurophysiology, neuropharmacology, cognitive neuroscience and neuropathology. The first year of the programme provides students with a broad coverage of cell and molecular biology, biochemistry, genetics, human physiology and introduces the anatomy and physiology of the nervous system. In the second year, students explore key concepts in neuroscience including how the brain develops, the mechanisms underlying learning and memory, how drugs affect the nervous system, the anatomy of the human nervous system, and how electrical activity in the brain works to control function. In the final year, students will explore how the brain governs behaviour, the mechanisms underlying neuropathology, how our sensory systems work, and understand how the brain can regenerate and repair itself. During the programme students will receive training in a range of practical techniques, and have the opportunity to undertake their final year research project in one of our research laboratories. In the second year of the programme students can opt to spend a semester abroad studying at one of our partner universities, or a year abroad studying or working in industry or a partner research institute.

Distinctive features of this programme are:

- Lectures underpinned by practical classes and the opportunity to undertake an experimental project in the final year
- Options of a study abroad year or work placement year
- Small specialised teaching team

## **4. Aims of the Programme**

The broad aims of the programme are to:

- provide you with knowledge, understanding and skills relevant to neuroscience;
- produce skilled and motivated graduates who are suitably prepared for further study or for employment within or outside their field;
- cultivate interest in neuroscience, within a caring and intellectually stimulating environment;
- promote the development of a range of employability skills to enable you to undertake relevant postgraduate study.

## **5. What you will learn**

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- U - Subject knowledge and understanding
- S - Subject specific skills
- I - Intellectual skills
- E - Key or transferable skills (including employability skills)

## **Subject knowledge and understanding**

Successful students will be able to demonstrate knowledge and understanding of:

- U1 cellular and gross anatomical features of the, developing and adult, peripheral and central nervous system
- U2 neuronal function, from a single cell to simple neuronal networks
- U3 the ionic principles underlying neuronal activity
- U4 the biochemical principles of cellular and systemic physiological systems
- U5 pharmacological principles of neuronal function, and the interaction with pharmaceutical agents
- U6 the basic experimental skills appropriate to the discipline of neuroscience
- U7 the approaches to acquiring, interpreting, analysing data from a variety of sources, including the use of statistics
- U8 neuronal mechanisms of cognitive function, and the relationship to the same phenomena at the behavioural level
- U9 cellular mechanisms underlying pathology of the nervous system
- U10 the contribution of research to the development of neuroscience knowledge
- U11 the use of anatomical and pharmacological terminology in neuroscience
- U12 the relevance of neuroscience to medical problems and improving the quality of life

## **Subject specific skills**

Successful students will be able to:

- S1 use a range of techniques for the acquisition and analysis of information relevant to the subject
- S2 use a range of laboratory techniques to ensure competence in experimental skills.
- S3 record and analyse data in a manner that ensure validity, accuracy, calibration, precision, and reliability
- S4 formulate a hypothesis to design, conduct, analyse, report and evaluate experiments.
- S5 recognise philosophical and ethical issues relevant to the subject, and appreciate the need for ethical standards and professional codes of conduct.
- S6 work safely and responsibly in the laboratory, with awareness of standard procedures

## **Intellectual skills**

Successful students will be able to:

- I1 assess the merits of contrasting theories, paradigms, concepts or principles
- I2 think independently, set tasks and solve problems by a variety of methods
- I3 make reasoned decisions and develop reasoned arguments
- I4 obtain and interpret several lines of subject-specific evidence to formulate and test hypotheses
- I5 make critical interpretations, evaluations and judgements of data and text
- I6 analyse, synthesise and summarise information critically, including published research or reports
- I7 apply scientific understanding to familiar and unfamiliar problems, and emphasise the interdisciplinary nature of science and the validity of different points of view
- I8 take responsibility for their own learning and reflect upon that learning

## **Key or transferable skills (including employability skills)**

Successful students will be able to:

- E1 develop an adaptable, flexible, sustainable and effective approach to study and work, including time management, creativity and intellectual integrity
- E2 acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal, graphical

- E3 prepare, process, interpret and present data using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programs for presenting data visually
- E4 use the internet and other electronic sources critically as a means of communication and a source of information
- E5 cite and reference work in an appropriate manner, avoiding issues with plagiarism
- E6 communicate effectively to a variety of audiences by written, spoken and graphical means using appropriate techniques and scientific language
- E7 develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills
- E8 work with others to achieve an objective in a respectful manner that is accepting of the viewpoints and opinions of others and evaluates the roles and development of team members
- E9 motivate themselves and sustain that motivation over an extended period of time
- E10 identify and work towards targets for personal, academic and career development

### Keele Graduate attributes

Engagement with this programme will enable you to develop your intellectual, personal and professional capabilities. At Keele, we call these our ten Graduate Attributes and they include independent thinking, synthesizing information, creative problem solving, communicating clearly, and appreciating the social, environmental and global implications of your studies and activities. Our educational programme and learning environment is designed to help you to become a well-rounded graduate who is capable of making a positive and valued contribution in a complex and rapidly changing world, whichever spheres of life you engage in after your studies are completed.

Further information about the Keele Graduate Attributes can be found here: <http://www.keele.ac.uk/journey/>

## 6. How is the Programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- **Traditional lectures** where the lecturer provides students with a framework for reading and independent study. Some lecture classes may feature guest speakers from a clinical or research-based area
- **Interactive learning** in large classes where students have the opportunity to work together in smaller groups, interact with the lecturer and reflect on their own learning
- **Practicals** in laboratories are particularly important and involve the study of processes relevant to neuroscience and provide training in a wide range of research techniques
- **Tutorials and seminars** in small groups of students where key issues can be discussed in more depth. Students are expected to play a full part and, occasionally, to lead these discussions. Some tutorials and seminars consist largely of student presentations and some are based on scientific papers studied in advance
- **Independent study** based on directed reading from text books, research papers and research reviews
- **Web-based learning** using the University's virtual learning environment (KLE). The KLE is used to give students easy access to a wide range of resources and research tools, and as a platform for online discussions and quizzes
- Students will be expected to undertake a substantive **research project** supervised and supported by a member of staff

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Personal Tutors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways. For example:

- Lectures and independent study allow students to gain knowledge and understanding of neuroscience and its component subjects such as physiology and genetics
- Seminars, tutorials and online discussions provide opportunities for students to ask questions about the subject, and to present their own ideas to members of staff and other students using an appropriate medium of communication
- Interactive lectures, seminars, tutorials and web-based activities encourage students to reflect on their own learning and take responsibility for its development by addressing areas of difficulty, perhaps by discussing them with their fellow students or by getting additional help from a member of staff
- Laboratory practicals allow students insight into the practical aspect of neuroscience and use a range of relevant scientific techniques
- Undertaking an experimental project with the support of an experienced researcher allows students to formulate relevant research questions and devise, carry out and analyse experiments to answer them

## **7. Teaching Staff**

Our core teaching staff are mainly from the School of Life Sciences. Teaching staff from the School of Pharmacy, School of Medicine and the University Hospitals of North Midlands NHS Trust also contribute to the Programme. Most staff are active in research. For information on the research interests and qualifications of staff from the School of Life Sciences, please see the School web page at: <https://www.keele.ac.uk/lifesci/people/>. In addition, some elements of the course will be delivered by staff from the School of Medicine, the Royal Stoke University Hospital, and the School of Pharmacy.

As part of probationary requirements, new staff must complete a postgraduate certificate in teaching at HE level, which is recognised by SEDA. Several Life Sciences' staff members have been awarded Keele's prestigious Excellence in Teaching and Learning awards and several were awarded a KeeleSU Education Award for personal tutoring.

There is a growing culture of higher education research and several members of staff are active in this field, with members of staff having already completed an MA in Teaching and Learning and several others in the process of doing so. In recent years several teaching innovation projects have been run by Life Sciences staff and several new projects have been proposed. Members of the School of Life Sciences hold recognised or accredited teaching qualifications and a number are Fellows or Associates of the Higher Education Academy (HEA) and a number are Senior Fellows of the HEA.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

## **8. What is the Structure of the Programme?**

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from course to course, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April.

Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are three types of module delivered as part of your programme. They are:

- Compulsory modules – a module that you are required to study on this course;
- Optional modules – these allow you some limited choice of what to study from a list of modules;
- Elective modules – a free choice of modules that count towards the overall credit requirement but not the number of subject-related credits.

A summary of the credit requirements per year is as follows, with a minimum of 90 subject credits (compulsory plus optional) required for each year.

Year	Compulsory	Optional		Electives	
		Min	Max	Min	Max
1	120	0	0	0	0
2	120	0	0	0	0
3	90	30	30	0	0

## **Module lists**

### **Year 1 (Level 4)**

Compulsory modules	Credits	Optional modules	Credits
Introduction to Neuroscience	30	None	
Physiology and Anatomy	30		
Biochemistry	30		
Molecular Cell Biology	30		

### **Year 2 (Level 5)**

Compulsory modules*	Credits	Optional modules	Credits
Neuroscience Research Methods	30	None	
Neuron to Brain	15		
Neurodevelopment	15		
Neuroanatomy	15		
Learning and Memory	15		
Neuropharmacology	15		
Cell Signalling	15		

*\*Students must choose all compulsory modules = 120 credits*

### **Year 3 (Level 6)**

Compulsory modules	Credits	Optional modules	Credits
Behavioural Neuroscience	15	Special Senses	15
Brain Disease	15	Advances in Medicine LSC-30028	15
Current Research Topics in Neuroscience	15	Clinical Pathology LSC-30009	15
Regeneration and Repair in the Nervous System	15	Applied Regenerative Medicine LSC-30068	15
Life Sciences Double Experimental Project (with Research Skills Assessment) Or Double Applied Life Sciences Placement ***	30  30		

*\*Can include a free-standing elective module (15 credits)*

*\*\*\* The Double Applied Life Sciences Placement module may replace Life Sciences Double Experimental Project (with research skills assessment) if the nature of the placement is deemed suitable and the work carried out meets the criteria of*

the research project module. If a student fails the Life Sciences Double Experimental Project module (or the alternative Double Applied Life Science Placement module) but has it condoned, then they will not be eligible for an RSB accredited degree, but shall instead be eligible for the award BSc Studies in Neuroscience

For further information on the content of modules currently offered, including the list of elective modules, please visit: [www.keele.ac.uk/recordsandexams/az](http://www.keele.ac.uk/recordsandexams/az)

## Learning Outcomes

The table below sets out what students learn in each year of the Programme, the modules in which that learning takes place, and the main ways in which students are assessed on their learning.

### Year 1 (Level 4)

<b>Subject Knowledge and Understanding</b>		
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
<i>Successful students will be able to:</i>		
U1 cellular and gross anatomical features of the, developing and adult, peripheral and central nervous system.	Introduction to Neuroscience, Physiology and Anatomy	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
U2 neuronal function, from a single cell to simple neuronal networks.	Introduction to Neuroscience, Physiology and Anatomy	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
U3 the ionic principles underlying neuronal activity.	Introduction to Neuroscience, Physiology and Anatomy	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
U4 the biochemical principles of cellular and systemic physiological systems.	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
U5 pharmacological principles of neuronal function, and the interaction with pharmaceutical agents.	Introduction to Neuroscience, Physiology and Anatomy	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
U6 the basic experimental skills appropriate to the discipline of neuroscience.	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell	Laboratory Reports.

	Biology	
U7 the approaches to acquiring, interpreting, analysing data from a variety of sources, including the use of statistics.	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.
U8 neuronal mechanisms of cognitive function, and the relationship to the same phenomena at the behavioural level.	Introduction to Neuroscience	Essays, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
U9 cellular mechanisms underlying pathology of the nervous system.	Introduction to Neuroscience, Physiology and Anatomy, Molecular Cell Biology	Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
U10 the contribution of research to the development of neuroscience knowledge.	Introduction to Neuroscience, Physiology and Anatomy	Essays, Poster Presentations.

<b>Subject Specific Skills</b>		
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
<i>Successful students will be able to:</i>		
S1 use a range of techniques for the acquisition and analysis of information relevant to the subject	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.
S2 use a range of laboratory techniques to ensure competence in experimental skills.	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.
S3 record and analyse data in a manner that ensure validity, accuracy, calibration, precision, and reliability	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.
S4 formulate a hypothesis to design, conduct, analyse, report and evaluate experiments.	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.
S5 recognise philosophical and ethical issues relevant to the subject, and appreciate the need for ethical standards and professional codes of conduct.	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.
S6 work safely and responsibly in the laboratory, with awareness of standard procedures	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.

<b>Intellectual Skills</b>		
<b>Learning Outcome</b> <i>Successful students will be able to:</i>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
I1 assess the merits of contrasting theories, paradigms, concepts or principles	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I2 think independently, set tasks and solve problems by a variety of methods	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I3 make reasoned decisions and develop reasoned arguments	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I4 obtain and interpret several lines of subject-specific evidence to formulate and test hypotheses	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I5 make critical interpretations, evaluations and judgements of data and text	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I6 analyse, synthesise and summarise information critically, including published research or reports	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I7 apply scientific understanding to familiar and unfamiliar problems, and emphasise the interdisciplinary nature of science and the validity of different points of view	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I8 take responsibility for their own learning and reflect upon that learning	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test,

	Biology	Multiple-choice and short-answer question and mini-essay Examinations.
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<b>Key or Transferable Skills (graduate attributes)</b>		
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
<i>Successful students will be able to:</i>		
E1. develop an adaptable, flexible, sustainable and effective approach to study and work, including time management, creativity and intellectual integrity	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
E2. acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal, graphical	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, mini-essay Examinations.
E3. prepare, process, interpret and present data using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programs for presenting data visually	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports.
E4. use the internet and other electronic sources critically as a means of communication and a source of information	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations,
E5. cite and reference work in an appropriate manner, avoiding issues with plagiarism	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations,
E6. communicate effectively to a variety of audiences by written, spoken and graphical means using appropriate techniques and scientific language	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations,
E7. develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
E8. work with others to achieve an objective in a respectful manner that is accepting of the viewpoints and opinions of others and evaluates the roles and	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Poster Presentations,

development of team members		
E9. motivate themselves and sustain that motivation over an extended period of time	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
E10. identify and work towards targets for personal, academic and career development	Introduction to Neuroscience, Physiology and Anatomy, Biochemistry, Molecular Cell Biology	Laboratory Reports, Essays, Poster Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.

## Year 2 (Level 5)

<b>Subject Knowledge and Understanding</b>		
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
<i>Successful students will be able to:</i>		
U1 cellular and gross anatomical features of the, developing and adult, peripheral and central nervous system.	Neurodevelopment, Neuroanatomy	Laboratory Report, Multiple choice and Anatomy Spotter Class Tests, short-answer question and essay Examinations.
U2 neuronal function, from a single cell to simple neuronal networks.	Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Paper Comprehension Tests, short-answer question and essay Examinations.
U3 the ionic principles underlying neuronal activity.	Neuron to Brain, Neuropharmacology	Paper Comprehension Tests, short-answer question and essay Examinations.
U4 the biochemical principles of cellular and systemic physiological systems.	Neuron to Brain, Neuropharmacology, Cell Signalling	Paper Comprehension Tests, short-answer question and essay Examinations.
U5 pharmacological principles of neuronal function, and the interaction with pharmaceutical agents.	Neuron to Brain, Neuropharmacology, Cell Signalling	Paper Comprehension Tests, short-answer question and essay Examinations.
U6 the basic experimental skills appropriate to the discipline of neuroscience.	Neuroscience Research Methods, Neurodevelopment	Laboratory Reports, Poster and Oral Presentation.
U7 the approaches to acquiring, interpreting, analysing data from a variety of sources, including the use of statistics.	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentation, Statistics Exam.
U8 neuronal mechanisms of cognitive function, and the relationship to the same phenomena at the behavioural level.	Learning and Memory	Paper Comprehension Tests, short-answer question and essay Examinations.

U9 cellular mechanisms underlying pathology of the nervous system.	Learning and Memory, Neuropharmacology	Paper Comprehension Tests, short-answer question and essay Examinations.
U10 the contribution of research to the development of neuroscience knowledge.	Neuroscience Research Methods, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentation, Statistics Exam. Paper Comprehension Tests, short-answer question and essay Examinations.

<b>Subject Specific Skills</b>		
<b>Learning Outcome</b> <i>Successful students will be able to:</i>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
S1 use a range of techniques for the acquisition and analysis of information relevant to the subject	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentation, Statistics Exam.
S2 use a range of laboratory techniques to ensure competence in experimental skills.	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentation, Statistics Exam.
S3 record and analyse data in a manner that ensure validity, accuracy, calibration, precision, and reliability	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentation, Statistics Exam.
S4 formulate a hypothesis to design, conduct, analyse, report and evaluate experiments.	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentation, Statistics Exam.
S5 recognise philosophical and ethical issues relevant to the subject, and appreciate the need for ethical standards and professional codes of conduct.	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentation.
S6 work safely and responsibly in the laboratory, with awareness of standard procedures	Neuroscience Research Methods	Laboratory Reports

<b>Intellectual Skills</b>		
<b>Learning Outcome</b> <i>Successful students will be able to:</i>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
I1 assess the merits of contrasting theories, paradigms, concepts or principles	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
I2 think independently, set tasks and solve problems by a variety of methods	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer

		question and mini-essay Examinations.
13 make reasoned decisions and develop reasoned arguments	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
14 obtain and interpret several lines of subject-specific evidence to formulate and test hypotheses	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
15 make critical interpretations, evaluations and judgements of data and text	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
16 analyse, synthesise and summarise information critically, including published research or reports	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
17 apply scientific understanding to familiar and unfamiliar problems, and emphasise the interdisciplinary nature of science and the validity of different points of view	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
18 take responsibility for their own learning and reflect upon that learning	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.

<b>Key or Transferable Skills (graduate attributes)</b>		
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
<i>Successful students will be able to:</i>		
E1. develop an adaptable, flexible, sustainable and effective approach to study and work, including time management, creativity and intellectual integrity	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.

E2. acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal, graphical	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentations
E3. prepare, process, interpret and present data using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programs for presenting data visually	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentations, Statistics Exam.
E4. use the internet and other electronic sources critically as a means of communication and a source of information	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
E5. cite and reference work in an appropriate manner, avoiding issues with plagiarism	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentations,
E6. communicate effectively to a variety of audiences by written, spoken and graphical means using appropriate techniques and scientific language	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentations,
E7. develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
E8. work with others to achieve an objective in a respectful manner that is accepting of the viewpoints and opinions of others and evaluates the roles and development of team members	Neuroscience Research Methods	Laboratory Reports, Poster and Oral Presentations,
E9. motivate themselves and sustain that motivation over an extended period of time	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.
E10. identify and work towards targets for personal, academic and career development	Neuroscience Research Methods, Neuroanatomy, Neuron to Brain, Learning and Memory, Neuropharmacology, Cell Signalling	Laboratory Reports, Poster and Oral Presentations, Multiple-choice and short-answer question Class Test, Multiple-choice and short-answer question and mini-essay Examinations.

### Year 3 (Level 6)

<b>Subject Knowledge and Understanding</b>		
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
<i>Successful students will be able to:</i>		
U1 cellular and gross anatomical features of the, developing and adult, peripheral and central nervous system.	Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
U2 neuronal function, from a single cell to simple neuronal networks.	Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
U3 the ionic principles underlying neuronal activity.	Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
U4 the biochemical principles of cellular and systemic physiological systems.	Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
U5 pharmacological principles of neuronal function, and the interaction with pharmaceutical agents.	Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
U6 the basic experimental skills appropriate to the discipline of neuroscience.	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement	Project
U7 the approaches to acquiring, interpreting, analysing data from a variety of sources, including the use of statistics.	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement	Project
U8 neuronal mechanisms of cognitive function, and the relationship to the same phenomena at the behavioural level.	Behavioural Neuroscience, Brain Disease	Essay, Essay Examination
U9 cellular mechanisms underlying pathology of the nervous system.	Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
U10 the contribution of research to the development of neuroscience	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay

knowledge.	Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	question Examinations.
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<b>Subject Specific Skills</b>		
<b>Learning Outcome</b> <i>Successful students will be able to:</i>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
S1 use a range of techniques for the acquisition and analysis of information relevant to the subject	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Regeneration and Repair in the Nervous System	Project, Dissertation, Grant Proposal.
S2 use a range of laboratory techniques to ensure competence in experimental skills.	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement	Project
S3 record and analyse data in a manner that ensure validity, accuracy, calibration, precision, and reliability	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement	Project
S4 formulate a hypothesis to design, conduct, analyse, report and evaluate experiments.	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement	Project
S5 recognise philosophical and ethical issues relevant to the subject, and appreciate the need for ethical standards and professional codes of conduct.	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Regeneration and Repair in the Nervous System	Project, Dissertation, Grant Proposal.
S6 work safely and responsibly in the laboratory, with awareness of standard procedures	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement	Project

<b>Intellectual Skills</b>		
<b>Learning Outcome</b> <i>Successful students will be able to:</i>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
I1 assess the merits of contrasting theories, paradigms, concepts or principles	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair,	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.

	Current Topics in Neuroscience	
I2 think independently, set tasks and solve problems by a variety of methods	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
I3 make reasoned decisions and develop reasoned arguments	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses, Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
I4 obtain and interpret several lines of subject-specific evidence to formulate and test hypotheses	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
I5 make critical interpretations, evaluations and judgements of data and text	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
I6 analyse, synthesise and summarise information critically, including published research or reports	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
I7 apply scientific understanding to familiar and unfamiliar problems, and emphasise the interdisciplinary nature of science and the validity of different points of view	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease,	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.

	Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	
18 take responsibility for their own learning and reflect upon that learning	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.

<b>Key or Transferable Skills (graduate attributes)</b>		
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>	<b>Principal forms of assessment (of the Level Outcome) used</b>
<i>Successful students will be able to:</i>		
E1. develop an adaptable, flexible, sustainable and effective approach to study and work, including time management, creativity and intellectual integrity	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
E2. acquire, analyse, synthesise, summarise and present information and ideas from a wide range of sources: textual, numerical, verbal, graphical	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio.
E3. prepare, process, interpret and present data using appropriate qualitative and quantitative techniques, statistical programmes, spreadsheets and programs for presenting data visually	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Non-Experimental Project	Project,
E4. use the internet and other electronic sources critically as a means of communication and a source of information	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Regeneration and Repair	Project, Dissertation, Essays, Grant Proposal,
E5. cite and reference work in an appropriate manner, avoiding	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences	Project, Dissertation, Essays, Grant Proposal, Paper Portfolio.

issues with plagiarism	Dissertation, Life Sciences Non-Experimental Project, Brain Disease, Regeneration and Repair, Current Topics in Neuroscience	
E6. communicate effectively to a variety of audiences by written, spoken and graphical means using appropriate techniques and scientific language	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio.
E7. develop skills necessary for self-managed and lifelong learning, including working independently, organisational, enterprise and knowledge transfer skills	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
E8. work with others to achieve an objective in a respectful manner that is accepting of the viewpoints and opinions of others and evaluates the roles and development of team members	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Regeneration and Repair	Project, Dissertation, Grant Proposal,
E9. motivate themselves and sustain that motivation over an extended period of time	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.
E10. identify and work towards targets for personal, academic and career development	Life Sciences Double Experimental Project, Double Applied Life Sciences Placement, Life Sciences Dissertation, Life Sciences Non-Experimental Project, Behavioural Neuroscience, Brain Disease, Special Senses (or other option modules), Regeneration and Repair, Current Topics in Neuroscience	Project, Dissertation, Essays, Grant Proposal, Paper Comprehension Test, Paper Portfolio. Essay question Examinations.

## 9. Final and intermediate awards

Credits required for each level of academic award are as follows:

<b>Honours Degree</b>	360 credits	You will require at least 120 credits at levels 4, 5 and 6  You must accumulate at least 270 credits in Neuroscience (out of 360 credits overall), with at least 90 credits in each of the three years of study, to graduate with a named single honours degree in Neuroscience.  N.B. The award will be 'Studies in Neuroscience' if a pass standard is not achieved in the Level 6 Double Experimental Project module or Double Applied Life Sciences Placement module (see Section 13 - Regulations). A 'Studies in Neuroscience' degree is not accredited by the Royal Society of Biology.
<b>Diploma in Higher Education</b>	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
<b>Certificate in Higher Education</b>	120 credits	You will require at least 120 credits at level 4 or higher

**Neuroscience with International Year:** in addition to the above students must pass a module covering the international year in order to graduate with a named degree in Neuroscience with international year. Students who do not complete, or fail the international year, will be transferred to the three-year Neuroscience programme.

**Neuroscience with Work Placement Year:** in addition to the above students must pass a non-credit bearing module covering the work placement year in order to graduate with a named degree in Neuroscience with Work Placement year. Students who do not complete, or fail the placement year, will be transferred to the three-year Neuroscience programme.

## 10. How is the Programme assessed?

The wide variety of assessment methods used within Neuroscience at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used within Neuroscience:

- **Unseen examinations** in different formats test students' knowledge and understanding of neuroscience. Examinations may consist of essay, short answer and/or multiple choice questions.
- **Essays**, including those based on case study material, also test the quality and application of subject knowledge. In addition they allow students to demonstrate their ability to carry out basic bibliographic research and to communicate their ideas effectively in writing in an appropriate scholarly style using the Harvard system of referencing. The portfolio (Current Research Topics in Neuroscience) is similar, but has an additional emphasis on concisely summarising current research papers and emphasising what is new and important about the research paper.
- **Class tests** taken either conventionally or online via the Keele Learning Environment (KLE) assess students' subject knowledge and their ability to apply it in a more structured and focused way. These tests may for example focus on comprehension of a relevant research paper published in a science journal.
- **Dissertations** are critical reviews of other scholars' work and test students' ability to identify and summarise the key points of a text and to evaluate the quality of arguments and the evidence used to support them. In the case of work based on empirical research, reviews also assess students' knowledge of research methodologies and their ability to make critical judgements about the appropriateness of different strategies for collecting and analysing data.

- **Experimental projects** test students' knowledge of research methodologies and their ability to carry them out. They also enable students to demonstrate their ability to formulate research questions, design experiments, carry them out and analyse the results.
- **Non-Experimental projects** test students' knowledge of research methodologies and their ability to carry them out. They are presented with some data which they analyse and report upon, in the context of current knowledge in that specific area.
- **Laboratory reports** are formal summaries of work carried out in the laboratory, presenting analysed data and conclusions. They test a range of practical laboratory skills and the ability to collect analyse and present data.
- **Oral presentations** assess students' subject knowledge and understanding. They also test their ability to work effectively as members of a team, to communicate what they know orally and visually, and to reflect on these processes as part of their own personal development.
- **Poster presentations** are typically the result of group work activities where the group presents data, or findings in an academic poster format. They test the ability to present complex ideas in graphical format.
- **Case-based tutorials** allow small group interactive learning

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

## 11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year/stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)
Scheduled learning and teaching activities	30%	22%	14%
Guided independent Study	70%	78%	86%
Placements	0%	0%	0%

## 12. Accreditation

Students should note that to be awarded Royal Society of Biology accreditation they must achieve a minimum standard of 40% in the Life Sciences Double Experimental Project (with research skills assessment), or equivalent placement module. Students that condone this module may still be eligible for the award 'Studies in Neuroscience'.

## 13. Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: <http://www.keele.ac.uk/student-agreement/>

### **Course Regulations**

The following specific course regulations should be noted:

A student who has completed a semester abroad will not normally be eligible to transfer onto the International Year option.

#### **Royal Society of Biology Accreditation**

Students must achieve a pass standard in the Life Sciences Double Experimental Project with research skills assessment (or, subject to agreement, Double Applied Life Sciences Placement) to attain an accredited degree. For students who do not fulfil the conditions of this regulation, the degree award will be '*Studies in Neuroscience*' and the degree will not be accredited by the Royal Society of Biology.

#### **Attendance**

Attendance at tutorials, seminars, workshops and laboratory sessions on this programme is compulsory. Failure to attend a class without good cause will result in an informal warning. Failure to attend any subsequent classes without good cause will lead to the issuing of a formal University warning in accordance with Regulation 1A9 and could result in the requirement to withdraw from the university. Attendance at lectures is expected, but is not compulsory.

#### **Self-Certification**

Self-certification of illness as a reason for absence from compulsory classes will be accepted for no more than two periods of absence, each covering no more than 7 days, per semester. Any subsequent absence for reasons of illness must be accompanied by a doctor's note.

#### **Laboratory, lecture and tutorial classes**

1. Wearing a laboratory coat is compulsory in all laboratories. Students will not be allowed to attend the laboratory class without a laboratory coat.
2. Students must wear appropriate clothing in the laboratories, including sensible footwear. Closed shoes and low heels should be worn. This is to avoid tripping and to protect the feet in the case of spillages. Long hair must be tied back. Students who are inappropriately dressed may, at the discretion of the member of staff in charge, be excluded from the class and recorded as being absent without good cause.
3. Students who arrive late to laboratory classes may, at the discretion of the member of staff in charge, be excluded from the class and recorded as being absent without good cause.
4. Students who display serious misconduct in any class may, at the discretion of the member of staff in charge, be excluded from the class and recorded as being absent without good cause. Serious misconduct involves wilful damage to property, injury or threat to persons, or persistent disruption of teaching.
5. The unauthorised use of mobile phones or headphones is not permitted in any class.
6. Students are not permitted to record, video or photograph taught sessions or meetings with staff, except with the permission in advance of the staff concerned. Permission will be given where this is part of an approved disability adjustment. Any permission to record, video or photograph is for personal use only and all recordings, videos or photographs remain the property of the presenter and Keele University.

#### **Health and Safety**

Students are required to read and follow the procedures in the School of Life Sciences Safety Handbook, which is available from the Biomedical Science Noticeboard on the KLE.

### **14. What are the typical admission requirements for the programme?**

Subject	A-level	Subjects not included	International Baccalaureate	BTEC	Access to Higher Education Diploma	GCSE requirements
Neuroscience (Single Honours)	<p>ABB</p> <p>To include 2 Science A levels (Biology, Chemistry, Physics, Maths, Applied Science, Statistics and Sports Science).</p> <p>A Pass in Science Practical will be required if taking A-level Biology, Chemistry or Physics (England)**</p> <p>** Science practical only required from applicants taking reformed A level Biology, Chemistry or Physics in England</p>	None	34 points to include 2 Higher Level Science subjects at 6 or above.	DDM You must have taken sufficient Science units, please contact us for advice.	Obtain Access to Higher Education Diploma with 30 Level 3 credits at Distinction and 15 Level 3 credits at Merit. You must also have taken sufficient Science credits, please contact us for advice.	Maths @ C (or 4) English Lang @ C (or 4)

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 6.0 or equivalent.

Please note: All non-native English speaking students are required to undertake a diagnostic English language assessment on arrival at Keele, to determine whether English language support may help them succeed with their studies. An English language module may be compulsory for some students during their first year at Keele.

Accreditation of Prior Learning (APL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here:

<http://www.keele.ac.uk/qa/accreditationofpriorlearning/>

## 15. How are students supported on the programme?

Support for student learning on the programme is provided in the following ways:

- Module tutors are responsible for providing support for learning on the modules. They also give individual feedback on in-course assessments and more general feedback on examinations.
- Tutors and demonstrators provide help and advice to students in laboratory sessions.
- Every student is allocated to a personal tutor who is responsible for reviewing and advising on students' academic progress on the programme.
- Personal tutors also act as a first point of contact for students on non-academic issues which may affect their learning and can refer students on to a range of specialist health, welfare and financial services co-ordinated by the University's Student Services Centre.

All members of teaching staff on the neuroscience programme are available to see students during office hours, if available, and by appointment.

## 16. Learning Resources

Neuroscience is taught in modern teaching rooms across the University, almost all of which are equipped with computers, internet access and electronic whiteboards or projection equipment. Rooms may be arranged either in traditional lecture format or more informally to allow students to work together in small groups.

Practical sessions are held in dedicated and up-to-date teaching laboratories within the School of Life Sciences.

The learning resources available to students on the Programme include:

- The extensive collection of books and journals relevant to undergraduate study held in the University Library. Much of this material is also accessible online to Keele students from anywhere in the world with a University username and password.
- A smaller collection of textbooks held in the Undergraduate Resource Room in the School of Life Sciences. The Resource Room is open at regular times during teaching periods and the resources are specifically related to the needs of students on programmes in the School of Life Sciences.
- The Keele Learning Environment (KLE) which provides easy access to a wide range of learning resources including lecture notes, electronic materials available in a repository maintained by the University Library and other resources – video, audio and text-based – accessible from external providers via the internet.

## 17. Other learning opportunities

### Work Placement Year

Students have the option of spending a year between Level 5 and Level 6 on a placement year. Students may choose to spend the placement in the research laboratory or a partner university, or in industry.

### Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided at Annex A.

### Other opportunities

During their time at Keele, Neuroscience students also have the opportunity to hear from, and talk to, a range of guest speakers and presenters including researchers from around the world. Some of these activities are timetabled as part of taught modules, others are organised separately but are widely advertised and undergraduate students are always welcome to attend. Students may also apply for Summer Vacation bursaries when available, e.g. <http://www.physoc.org/undergraduate-vacation-studentship-scheme>

## 18. Additional costs

There will be additional costs for inter-library loans and potential overdue library fines, printing and graduation. Foreign Placements are likely to incur additional costs for flights, transport, inoculations and accommodation.

Other than for the purchase of some textbooks, the value and quantity of which varies considerably from student to student, we do not anticipate any further costs for this undergraduate programme.

## 19. Quality management and enhancement

The quality and standards of learning in Neuroscience are subject to a continuous process of monitoring, review and enhancement.

- The Learning and Teaching Committee of the School of Life Sciences is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.

- Individual modules and the Neuroscience Programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year and as part of the University's Curriculum Annual Review and Development (CARD) process.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Internal Quality Audit (IQA) process.

Student evaluation of, and feedback on, the quality of learning on every Neuroscience module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of the Curriculum Annual Review and Development (CARD) process.
- Findings related to the Neuroscience Programmes from the annual National Student Survey (NSS), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the Neuroscience Programme is considered and acted on at regular meetings of the Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:

<http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/>

## 20. The principles of programme design

The Neuroscience Programmes described in this document have been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

- UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education: <http://www.qaa.ac.uk/quality-code/>
- QAA Subject Benchmark Statement: Biosciences (2015) [http://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-biosciences-15.pdf?sfvrsn=4eef781\\_24](http://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-biosciences-15.pdf?sfvrsn=4eef781_24)
- RSB Handbook for Accreditation of Degrees [https://www.rsb.org.uk/images/RSB\\_Accreditation\\_Handbook.pdf](https://www.rsb.org.uk/images/RSB_Accreditation_Handbook.pdf)
- Keele University Regulations and Guidance for Students and Staff: <http://www.keele.ac.uk/regulations>

## 21. Document Version History

**Date of first approved version (v1.0):** 22<sup>nd</sup> September 2017

Revision history

Version number <sup>1</sup>	Author	Date	Summary of and rationale for changes
2.0	Dr Michael Evans	06.07.18	Semester Abroad option removed due to the timetabling

<sup>1</sup> 1.1, 1.2 etc. are used for minor changes and 2.0, 3.0 etc. for major changes (as defined in the University's Guidance on processes supporting curriculum changes)

			issues caused by scheduling alternative modules
2.1	Dr Michael Evans	December 2018	Updates to the module list at Level 6
2.2	Dr Michael Evans	May 2019	Level 6: removal of 'Life Sciences Non-experimental project' and 'Developmental Biology' optional modules; addition of optional modules – 'Advances in Medicine', 'Clinical Pathology' and 'Applied Regenerative Medicine'

## Annex A

### BSc (Hons) Neuroscience with International Year

#### International Year Programme

Students registered for Single Honours Neuroscience may either be admitted for or apply to transfer during their period of study at Level 5 to the Single Honours 'Neuroscience with International Year'. Students accepted onto this programme will have an extra year of study (the International Year) at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the BSc (Hons) Neuroscience and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'BSc (Hons) Neuroscience with International Year'.

#### International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject
2. Experience of a different culture, academically, professionally and socially

#### Entry Requirements for the International Year

Students may apply to the 4-year programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 60% across all modules at Level 5 is normally required)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2<sup>nd</sup> semester of year 2 (Level 5), and by recommendation of the student's personal tutor, 1<sup>st</sup> and 2<sup>nd</sup> year tutors and programme director)

#### Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutor, in line with recommended Personal Tutoring meeting points.
- Support from the University's Global Education Team

#### Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

- i) Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
- ii) Discuss the benefits and challenges of global citizenship and internationalisation

- iii) Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.

In addition, students who complete 'BSc (Hons) Neuroscience with International Year' will be able to:

- iv) Use independent research skills to identify relevant information resources on a range of subjects related, or complementary, to Neuroscience.
- v) Demonstrate the use of critical thinking skills, augmented by creativity and curiosity, in discussing the application of their International Year studies to Neuroscience.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

### **Course Regulations**

Students registered for the 'BSc (Hons) Neuroscience with International Year' are subject to the course specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any Neuroscience module with significant overlap to Level 6 modules to be studied on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

### **Additional costs for the International Year**

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: [www.gov.uk](http://www.gov.uk)

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.