



## Programme Specification (UG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of award and field of study:	BSc Neuroscience, BSc Neuroscience with a year abroad, BSc Neuroscience with a year in Industry
Name of interim award(s):	
Duration of study / period of registration:	3 years (4 years with year abroad variant/year in Industry)
QMUL programme code / UCAS code(s):	B140, B14Y, B141
QAA Benchmark Group:	Biomedical Sciences
FHEQ Level of Award :	Level 6
Programme accredited by:	
Date Programme Specification approved:	6 Jul 2022
Responsible School / Institute:	Blizard Institute

Schools / Institutes which will also be involved in teaching part of the programme:

School of Biological and Behavioural Sciences

Barts and The London School of Medicine and Dentistry

Collaborative institution(s) / organisation(s) involved in delivering the programme:

### Programme outline

Neuroscience is an exciting and rapidly developing field, both in terms of understanding the functioning of the nervous system as it relates to normal cognition and behaviours and the development of medical treatments for neurological and psychiatric disorders. Barts and The London School of Medicine and Dentistry (SMD) and in the School of Biological and Behavioural Sciences (SBBS) have educational expertise and academic excellence in research in Neuroscience ranging from behavioural and cognitive neuroscience to abnormal psychology and translational neuroscience of traumatic brain and spinal cord injuries and neurodegenerative disease.

A BSc in Neuroscience requires a strong grounding in basic science provided by a suite of modules during the first two years, when students will study topics including neuroanatomy, physiology, biochemistry, molecular biology, genetics and pharmacology. Subject specific modules in years one to three will foster understanding of the interplay between genes and the environment that influences all neural functions spanning from development of the nervous system to its adaptation with learning and alteration in disease. In the second and third years of the course, students will have the opportunity to choose

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elective modules with a range of topics including stem cells and regeneration, translational neuroscience and psychology according to own student's own career goals and interests. The final year research-oriented project enables students to develop team-working, analytical and practical skills and offers an opportunity to join an existing research group.

The BSc in Neuroscience offers excellent training for students wishing to pursue postgraduate study at the MSc or PhD level. The degree provides excellent preparation for careers in neuroscience and pharmaceutical research, industry and the commercial or public sector.

## Aims of the programme

The specific purposes of the programme are to provide students with:

- a thorough understanding of Neuroscience including its core principles and current theoretical frameworks based on a strong foundation in the medical sciences.
- an in-depth appreciation of specific topics relevant to current advances in medical research
- practical skills in research and an informed understanding of research approaches in Neuroscience

The programme will address skills requirements for

- progression to medical and dental degree courses and professions allied to medicine.
- academic and clinical research.
- employment in biotechnology, pharmaceutical and neuroscience based companies.
- graduate training programmes and employment in a range of sectors

Furthermore it will:

- provide a rational, flexibly structured and coherent programme of study which is relevant to the needs of employers, facilitate the professional development of the student and lay the foundations for a successful career to the benefit of the economy and society;
- provide a sound knowledge base in the fields studied and develop key transferable skills in the areas of communication, numeracy, information technology, leadership, working with others, problem solving, time and task management;
- foster the development of an enquiring, open-minded and creative attitude, tempered with scientific discipline and social awareness, which encourages lifelong learning.

## What will you be expected to achieve?

Students who successfully complete the programme will have knowledge and understanding of the topics outlined immediately below, as well as the skills and attributes described in the subsequent sections.

**Please note that the following information is only applicable to students who commenced their Level 4 studies in 2017/18, or 2018/19**

In each year of undergraduate study, students are required to study modules to the value of at least 10 credits, which align to one or more of the following themes:

- networking
- multi- and inter-disciplinarity
- international perspectives
- enterprising perspectives.

These modules will be identified through the Module Directory, and / or by your School or Institute as your studies progress.

Academic Content:	
A 1	A systematic understanding of key concepts in Neuroscience including the development, anatomy and physiology of the nervous system as well as neurotransmitters, receptors and intracellular signalling systems
A 2	Knowledge and insight of molecular and cellular mechanisms controlling neural function in both health and disease.
A 3	Conceptual understanding of the biological mechanisms underlying diseases of the nervous system and application of this knowledge to alternative therapeutic strategies
A 4	Critical evaluation of experimental techniques and models used in neuroscience research considering ethical concerns and limitations
A 5	Year in industry variant: Acquire knowledge of the biotechnology, pharmaceutical and related life sciences sector. Enhance understanding of career opportunities within the commercial, governmental regulatory or clinical healthcare sector.

Disciplinary Skills - able to:	
B 1	Integrate information from a variety of sources to construct a coherent argument on a scientific topic
B 2	Critically appraise and analyze scientific literature and interpret findings
B 3	Construct hypotheses pertinent to the experimental exploration of topical questions in the field of Neuroscience
B 4	Perform practical work efficiently and with due regard to health and safety.
B 5	Analyse and evaluate/interpret the results of controlled experiments.
B 6	Prepare scientific/technical reports.
B 7	Year in industry variant: Students will perform duties aligned with the particular placement. Transferable skills will include teamwork, communication and networking.

Attributes:	
C 1	Communicate effectively by written and verbal means.
C 2	Capacity for independent learning, and to work independently.
C 3	Able to participate constructively as a member of a group/team, with skills to influence, negotiate and lead.
C 4	Evaluate the relevance, importance and reliability of the ideas of others and of different sources of information.
C 5	Competence in the use of computer-based technology, and in the manipulation and analysis of quantitative data.
C 6	Critical awareness of the role and impact of science in society, including the global perspective.
C 7	Use information for evidence-based decision-making and creative thinking.
C 8	Year in industry variant: Expand professional network within the biotechnology or pharmaceutical industry and enhance career prospects
C 9	Year abroad variant: gain a global perspective of science and increase students cultural exposure

### How will you learn?

Knowledge and skills are developed progressively through the programme.

#### Academic Content

The programme includes scheduled lectures, practical classes, workshops, seminars, tutorials and practical demonstrations and will incorporate the use of e-learning.

Students are also expected to use independent and self-directed learning to consolidate the lecture material, for completion of coursework and in preparation for subsequent learning sessions. Support for learning is provided through the Library, Queen Mary's online learning environment (QMplus) and the facilities of the QMUL Student Information Technology Service.

#### Practical and Problem-oriented Disciplinary Skills

Practical skills will be taught as part of organised practical classes, during the early stages of the programme. Workshops reinforce knowledge acquired in lectures and provide opportunities for application of such knowledge to the solution of real problems. Advanced practical skills and specialised analytical skills are then developed during the project component of the third year. The third year also includes critical analysis through project development and tutorial led journal clubs and discussion forums.

#### Graduate Attributes-- transferable skills and global awareness

Queen Mary's graduate attributes are developed in a progressive fashion, but most notably in tutorial-based components of modules. Students will learn and evaluate scientific advancement and medical application with a global context across a number of different modules. The project module provides further opportunities for the development of transferable skills and other aspects of these attributes.

### How will you be assessed?

Assessment of knowledge is through a combination of written examinations and assessed coursework. The exact nature of the coursework varies from module to module and may include in-course assessments, essays, oral presentations and group work. The coursework mark may also include a contribution from online and computer-based assessments. Prompt feedback is provided on elements of coursework to provide an iterative learning experience, in which both knowledge and skills can be gradually developed and strengthened.

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Transferable skills are developed in a contextual manner throughout the teaching and learning programme, and are indirectly assessed as part of the normal assessment processes for the programme. For example, the assessment of the projects includes consideration of data-retrieval skills, report-writing skills and presentational skills.

Practical skills are assessed through in-class observation and through written laboratory reports, which often include attention to quantitative accuracy. The assessment of the final year practical research project also addresses the majority of the professional disciplinary skills that students of this programme are expected to acquire.

### How is the programme structured?

Please specify the structure of the programme diets for all variants of the programme (e.g. full-time, part-time - if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

The programme is studied full-time over three years.

Students are required to register for modules to a value of 120 credits in each academic year. These modules are chosen from those offered in the Neuroscience programme diet, as detailed below.

In the first year, you will study 120 credits, comprising 8 x 15 credit compulsory modules (totalling 120 credits, across Semesters A & B).

In the second year, you will study 120 credits, comprising the following:

- 6 x 15 credit compulsory modules (totalling 90 credits, across Semesters A & B)
- 2 x 15 credit elective module from the discipline elective group (30 credits, Semesters A & B).

To be eligible for the award of BSc (Hons) Neuroscience with a year abroad, students must take SBC201 after the 2nd year and then return to QMUL the following year to complete the Year 3 diet in their 4th Year of study.

To be eligible for the award of BSc (Hons) Neuroscience with Year in Industry, students must take SBC5001 after the 2nd year and then return to QMUL the following year to complete the Year 3 diet in their 4th Year of study.

In third year, you will study 120 credits comprising the following:

- 1 x elective module from the Research Project group: either BMD650 or BIO603 or BMD606 (totalling 30 credits, across Semesters A & B)
- 2 x compulsory modules, BMD361 Repair & Regeneration in the Nervous System (15 credits, Semester 1), and BMD369 Perspectives on Brain Disorders (15 credits, Semester 2)
- 4 x 15 credit elective modules from the discipline elective group (totalling 60 credits, across Semester A & B).

Choice between electives is generally unrestricted, but with the exceptions that:

- you must not register for more than 75 credits in total in any given semester
- you must check that you satisfy the prerequisites before registering for any elective module
- you must register for one of BMD650 or BIO603 or BMD606 in the final year.

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Exploring Neuroscience	BMD161	15	4	Compulsory	1	Semester 1
Cells	BMD116	15	4	Compulsory	1	Semester 1

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Human Anatomy	BMD113	15	4	Compulsory	1	Semester 1
Molecular Genetics	BMD164	15	4	Compulsory	1	Semester 1
Biomedical Physiology I	BMD121	15	4	Compulsory	1	Semester 2
Biomolecules of Life	BMD123	15	4	Compulsory	1	Semester 2
Tissue Biology	BMD181	15	4	Compulsory	1	Semester 2
Functional Neuroanatomy	BMD163	15	4	Compulsory	1	Semester 2

Academic Year of Study FT - Year 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Biomedical Physiology II	BMD221	15	5	Compulsory	2	Semester 1
Human Molecular Biology	BMD211	15	5	Compulsory	2	Semester 1
Cellular & Molecular Neuroscience	BMD261	15	5	Compulsory	2	Semester 1
Comparative & Integrative Physiology	BIO215	15	5	Elective	2	Semester 1
Human Genetic Disorders	BIO227	15	5	Elective	2	Semester 1
Biomedical Pharmacology	BMD225	15	5	Compulsory	2	Semester 2
Systems Neuroscience	BMD265	15	5	Compulsory	2	Semester 2
Membrane & Cellular Biochemistry	BIO263	15	5	Compulsory	2	Semester 2
Cell Biology and Developmental Genetics	BIO213	15	5	Elective	2	Semester 2

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Basic Immunology	BMD251	15	5	Elective	2	Semester 2
Psychopathology	PYS253	15	5	Elective	2	Semester 2

Academic Year of Study FT - Year 3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Research Project in Neuroscience (Project elective)	BMD650	30	6	Elective	3	Semesters 1 & 2
Project Skills in the Life Sciences (Project elective)	BIO603	30	6	Elective	3	Semesters 1 & 2
Engaging the Public with Science (Project elective)	BMD606	30	6	Elective	3	Semesters 1 & 2
Repair & Regeneration in the Nervous System	BMD361	15	6	Compulsory	3	Semester 1
Perspectives on Brain Disorders	BMD369	15	6	Compulsory	3	Semester 2
Stem Cells & Regenerative Medicine	BMD363	15	6	Elective	3	Semester 1
Advanced Immunology	BMD351	15	6	Elective	3	Semester 1
Molecular Basis of Disease	BIO363	15	6	Elective	3	Semester 1
Drug Design	BMD358	15	6	Elective	3	Semester 2
Biomarkers in Neuroscience	BMD365	15	6	Elective	3	Semester 2
Advanced Human Genetic Disorders	BIO324	15	6	Elective	3	Semester 2
Neuroscience: Molecules to Behaviour	BIO333	15	6	Elective	3	Semester 2
Cognitive and affective neuroscience	PSY323	15	6	Elective	3	Semester 2

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Academic Year of Study FT - Year 3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
The following modules must be taken to qualify for the degree 'with a year abroad'						
SBCS Study Abroad Year	SBC201	120	5	Core	3	Semesters 1 & 2
The following module must be taken to qualify for the degree 'with year in industry'						
Year in industry placement	SBC5001	120	5	Core	3	Semesters 1 & 2

### What are the entry requirements?

Candidates must be able to satisfy the general admissions requirements of the University and meet the requirements for this specific programme of study. This is usually achieved in one of the following ways (note - the entry-points tariff is subject to annual review):

For direct entry to the degree programme, candidates should have ABB including Biology or Chemistry and a second science subject (Biology, Chemistry, Physics and Maths).

Students may enter via Admission to the QMUL Science and Engineering Foundation Programme (SEFP), and successful completion of the foundation year (defined by achievement of the minimum requirements for progression defined in the SEFP programme regulations, and the criteria specified in the SEFP Student Handbook for progression to this particular degree programme).

International students should be offering IELTS 6.5 (with a minimum of 6.0 in writing), or equivalent.

### How will the quality of the programme be managed and enhanced? How do we listen to and act on your feedback?

The Staff-Student Liaison Committee provides a formal means of communication and discussion between schools/institutes and its students. The committee consists of student representatives from each year in the school/institute together with appropriate representation from staff within the school/institute. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Staff-Student Liaison Committees meet regularly throughout the year.

Each school/institute operates a Learning and Teaching Committee, or equivalent, which advises the School/ Director of Education on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in the committee's work in a number of ways, such as through student membership, or consideration of student surveys.

All schools/institutes operate an Annual Programme Review of their taught undergraduate and postgraduate provision. APR is a continuous process of reflection and action planning which is owned by those responsible for programme delivery; the main document of reference for this process is the SEAP (Student Experience Action Plan) which is the summary of the school/institute's work throughout the year to monitor academic standards and to improve the student experience. Students' views are considered in this process through analysis of the NSS and module evaluations.

### What academic support is available?

Each student is provided with a personal academic guidance tutor (mentor) who is a member of SMD academic staff. This person is the main point of contact for advice regarding academic matters and for assistance with pastoral concerns, throughout their whole programme. Students can see their mentor in their office hours or arrange an appointment via email. Moreover, if



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and when mentors are unavailable the course director will facilitate appropriate guidance either directly or through recommendation to appropriate QM student support services.

### How inclusive is the programme for all students, including those with disabilities?

The Neuroscience programme routinely admits and graduates students from a range of backgrounds, across the spectra of protected characteristics and with a variety of disabilities and learning requirements. We work with school, university and national initiatives (including the Equality, Diversity and Inclusion Committee, QMSU, and Athena SWAN) to create and foster a welcoming and inclusive learning environment.

In terms of disabilities, both physical and mental health, we work with the Disability and Dyslexia Service (DDS) to ensure appropriate support is provided to all our students. DDS provides advice, guidance and support in the following areas:

- Identifying students with specific learning requirements such as dyslexia
- Applying for funding through the Disabled Students' Allowance (DSA)
- Arranging DSA assessments of need
- Special arrangements in examinations
- Accessing loaned equipment
- Specialist one-to-one "study skills" tuition
- Ensuring access to course materials in alternative formats (e.g. Braille)
- Providing educational support workers (e.g. note-takers, readers, library assistants)
- Mentoring support for students with mental health issues and conditions on the autistic spectrum.

### Programme-specific rules and facts

None

### Links with employers, placement opportunities and transferable skills

The BSc degree in Neuroscience will allow graduates to apply to study medicine or a PhD, to pursue a career in research or to teach, or to gain employment in the pharmaceutical and biotechnology industries, or other fields allied to science, technology and medicine. There is a named academic who oversees the suite of careers-related activities in the programme. This academic works in collaboration with SBBS's dedicated Careers Consultant in Careers and Enterprise, an Employer Engagement and Internships Coordinator and also a Placements Coordinator. Together, this team promotes career opportunities and arranges a dynamic schedule of events which includes networking opportunities between students and employers.

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## Programme Specification Approval

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Person completing Programme Specification:

Joanna Riddoch-Contreras

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**Person responsible for management of programme:**

Joanna Riddoch-Contreras

**Date Programme Specification produced / amended by  
School / Institute Education Committee:**

18th July 2022

**Date Programme Specification approved by Taught  
Programmes Board:**

6 Jul 2022