UNIVERSITY OF CAMBRIDGE

Programme Specification 2020-21

MPhil in Basic and Translational Neuroscience

Awarding body	University of Cambridge
Teaching institution	University of Cambridge
Accreditation details	None
Name of final award	Master of Philosophy
Programme title	MPhil in Basic and Translational Neuroscience
HECoS code(s)	100272 (neuroscience)
Relevant QAA benchmark statement(s)	None
Qualifications framework level	7 (Master's)
Date specification produced	March 2021

This one-year neuroscience programme completes Cambridge Neuroscience training opportunities from undergraduate to postdoctoral levels. It is aimed particularly at those who want to prepare for later studies at PhD level, clinicians and others who want graduate-level research training, but for whom a full PhD might not be required or appropriate, and graduates who plan a career in translational neuroscience, including careers in the pharmaceutical industry.

Educational Aims

The aims of this one-year, full-time research training course are as follows:

- to give the student experience of research work;
- to expose them to a variety of laboratory environments and the balance of self-sufficiency and teamwork needed in a researcher;
- to introduce them to the basic skills of experimental design, project management, time management etc. needed in research;
- to familiarise the student with the practicalities of laboratory research, imparting an understanding of the nature of bench research, of record keeping and data handling and of good laboratory practice;
- to introduce them to basic analytical techniques needed to understand and contextualise their research;
- to familiarise them with basic scientific writing and presentation skills.

The course also aims to:

- attract students from a wide range of backgrounds into neuroscience by providing a taught module with a basic overview of neuroscience;
- provide students thorough training in neuroscience methods, data analysis and statistics techniques;
- give students the necessary basic but broad understanding of neuroscience to prepare them for future PhD studies;
- provide students with adequate experience in neuroscience research to enable them to make an informed choice of PhD project if they so wish.

Learning outcomes

Upon successful completion of the Masters course, students will have:

- developed a broad understanding of modern research techniques, and thorough knowledge of the literature, applicable to research in topics related to Neuroscience;
- been exposed to a number of theoretical approaches to brain science and trained in critical thinking in the area;
- acquired specific expertise in neuroscience research methods and statistics;
- demonstrated originality in the application of knowledge, together with a practical understanding of how research and enquiry are used to create and interpret knowledge in the field;
- acquired knowledge of a broad range of interdisciplinary research areas and supervisors to inform their choice of PhD projects if applicable;
- undertaken training in generic and transferable research skills including the critical evaluation of current research and research techniques and methodologies.

Programme structure and Teaching methods

The programme is administered from the Department of Physiology, Development and Neuroscience, but both taught components and lab rotations involve a wide range of participating departments.

The MPhil is a one-year full-time programme and involves both formal teaching and research: students are integrated into the research culture of at least one Department by joining a research group. In addition, they take research technique modules to broaden their experience of research techniques. They may attend the Departments' programme of research seminars and other graduate courses, but most research training is provided within the group structure and overseen by their research supervisors. Informal opportunities to develop research skills also exist through mentoring by fellow students and members of staff.

The MPhil begins with an induction period comprising generic courses organised by the Graduate School of Life Sciences (including safety, science ethics, keeping laboratory notebooks and intellectual property), and introductory lectures on aspects of Neuroscience followed by meetings with participating supervisors in their laboratories. These meetings will form the basis of selection of one mini-project. In addition, the students will choose at least three shorter research training modules, spanning different aspects of neuroscience, introducing a range of problems, experimental techniques and laboratory environments.

Laboratory Rotations
The MPhil includes a project rotation in a laboratory of the student's choice, chosen from projects offered by Cambridge Neuroscience Principal Investigators. The write up for the project is formally assessed. Projects in external organisations (industry-based) may be available but in this case the student is assigned an academic University-based supervisor in addition to the industry-based supervisor.

Research Training Modules
Students choose at least three research training modules, from a choice of around 5-7. Modules available will vary from year to year, but an indicative list may include: Human imaging, Human neurochemistry and neurophysics, Rodent behavioural analysis, Basic molecular biology techniques, and Literature meta-analysis.

Other Formal Teaching
In addition to the research project and research training modules, students receive a total of at least 20 hours of lectures, seminars and workshops on the five main themes of Cambridge Neuroscience. In addition there are two courses on research methods and statistics.

Theoretical knowledge in neuroscience will be assessed by an extended essay or research proposal, and the research methods and statistics modules will be assessed by a multiple-choice-style examination.

Generic Skills Training
Students within this award will be members of the University's Graduate School of Life Sciences (GSLS). GSLS directs educational policy and manages and delivers transferable and generic skills training for approximately 1350 research students. GSLS employs two training officers who work as part of the University's six-person transferable skills team. Both GSLS training officers have PhDs in biomedical sciences and have worked in academic and non-academic research environments. Training is therefore delivered efficiently, making full use of the depth of central resources and contacts such as the Careers Service and Centre for Personal and Professional development, but it is also specific for our students, delivered in appropriate biomedical language. Training officers frequently visit Departments and Institutes to link local and central provision and to ensure awareness of services available.

In addition to the training as outlined above, students will engage with the generic training courses organized by Graduate School, and other University bodies, such as communication skills, personal development, ethics, career planning, computing and information technology.

Assessment methods

The MPhil is assessed in four ways:

1. A report on the research project, approved or prescribed by the Degree Committee, not exceeding 10,000 words in length, including tables, figure legends, and appendices, but excluding bibliography. The research project accounts for 70% of the overall mark for the degree.
2. A 5,000-word essay; The topic of the essay must be approved by the Programme Director and will form the basis of the portfolio of lectures and seminars which the student takes. Students wishing to continue to the PhD may seek approval to replace the essay with a research proposal for their chosen project. This essay forms 25% of the overall mark.
3. An MCQ paper on Research methods and statistics, which accounts for 5% of the overall mark.
4. An oral examination, which will cover all of the submitted work above.

There is no specific assessment of the research modules, but this may form part of the oral examination in (4) above.

Entry and/or progression requirements

Entry to the MPhil requires students to hold or expect to obtain at least an upper second class honours degree or equivalent in any subject relevant to the programme (including Biochemistry, Molecular Biology, Genetics, Neuroscience, Physiology, Pharmacology, Psychology, Medicine, Statistics, Epidemiology, Physics, Chemistry, Engineering, Mathematics, and related subjects). Standard University language requirements apply.

Students wishing to progress to the PhD after completing this MPhil course must apply via the Graduate Admissions Office. They will be required to pass the MPhil degree at a sufficient level to satisfy the Departmental Graduate Education Committee of the Department they are applying to and that they have the skills and ability to achieve the higher degree.

Student support

The MPhil and participating Departments conform to the University's Code of Practice for the training and supervision of graduate students.

A Management Committee will meet at least once per term, and have responsibility for the design and delivery of the training programme, for selection and evaluation of students by appointed interview panels, and for allocation of research projects.

The Programme Director will be appointed as the Principal Supervisor for all students for the duration of the programme, although project supervisors drawn from the principal investigators or senior research staff within their groups will also be assigned for the projects. The Principal Supervisor will provide individual guidance and general support, and meets students at least three times during the course.

A Course Mentor will be appointed to be responsible for advising students, in liaison with the Graduate School of Life Sciences, the Board of Graduate Studies and the Colleges. In particular, the Course Mentor will ensure that students undertaking projects in participating Departments remain fully involved in the broader aims and activities of the programme.

Students will participate in a symposium where they will have the opportunity for presenting their research. Students will be encouraged to join cognate learned Societies and to give presentations arising from their projects at relevant conferences.

Management of teaching quality and standards

The University ensures high standards of teaching and learning in the following ways:

- The completion of Annual Quality Updates by each Faculty and Department, to enable central overview of provision and assist in dissemination of good practice
- Scrutiny of the reports of External Examiners for all teaching programmes
- Encouraging student engagement at both the local level, through involvement in Faculty and Departmental Committees, and at a central level by participation in nationally-benchmarked surveys
- Holding reflective, centrally-coordinated, Learning and Teaching Reviews for all teaching institutions every six years to explore provision and suggest constructive courses of action
- Mentoring, appraisal, and peer review of staff, and encouraging staff participation in personal development programmes

Graduate employability and career destinations

Preparation for employment in general is provided in the opportunities for the acquisition of relevant transferable skills outlined in this programme specification. Where programmes with a significant vocational or professional element are accredited by Professional, Regulatory or Statutory Bodies details are given above.

The Careers Service maintains links with employers and takes their needs and opinions into account in the services which it provides for students. The Careers Service also allocates a Careers Adviser to each College, faculty and department to act as a point of contact.

the academical year, any approved changes to the programme will be communicated to enrolled students through email notification or publication in the *Reporter*. The relevant faculty or department will endeavour to update the programme specification accordingly, and prior to the start of the next academical year.

Further information about specifications and an archive of programme specifications for all awards of the University is available online at: https://www.camdata.admin.cam.ac.uk/