

Neuroscience and Neurophysiology PhD/MSc by Research

Understanding brain function and brain diseases are major intellectual and practical challenges facing mankind. Neuroscience in the School of Clinical and Experimental Medicine has research strengths in: neurodegenerative diseases; neurodegeneration and repair; neuronal function and dysfunction; and psychiatry. It spans basic and clinical research, at levels of analysis from the molecular to the whole organism.

[Study here and find out why the University of Birmingham was awarded The Times and The Sunday Times University of the Year 2013-14 \(http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx\)](http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)

Course fact file

Type of Course: Doctoral research

Study Options: Full time, part time

Duration: PhD – 3 years full-time, 6 years part-time; MSc by Research – 1 year full-time, 2 years part-time.

Start date: Research degrees may start at any time of the year, though for most this will be September each year.

Contact

College of Medical and Dental Sciences Graduate School: mds-gradschool@contacts.bham.ac.uk (<mailto:mds-gradschool@contacts.bham.ac.uk>)

You can contact us on +44 (0)121 414 5005

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Details

Understanding brain function and brain diseases are major intellectual and practical challenges facing mankind. Neuroscience in the School of Clinical and Experimental Medicine has research strengths in:

- Neurodegenerative diseases
- Neurodegeneration and repair
- Neuronal function and dysfunction
- Psychiatry

It spans basic and clinical research, at levels of analysis from the molecular to the whole organism. It has strong collaborative links with the Birmingham Clinical Trials Unit and with the wider neuroscience community in the Colleges of Life and Environmental Sciences and Engineering.

Research is performed in specialised laboratories for:

- Molecular neurology
- Molecular neuroscience
- Cellular neuroscience
- Cellular and systems electrophysiology
- Imaging and neuropharmacology

Clinical studies are centred on the Clinical Neuroscience Unit in the Queen Elizabeth Hospital, the Academic Psychiatry Unit in the Queen Elizabeth Psychiatric Hospital (QEPH), and through field teams based at the QEPH.

Fees and funding

[Standard fees \(/postgraduate/dr-fees/tuition.aspx\)](#) apply, although in some projects a bench fee is also payable

Learn more about **[fees and funding \(/postgraduate/dr-fees/index.aspx\)](#)**

[Scholarships and studentships](#)

Scholarships may be available. International students can often gain funding through overseas research scholarships, Commonwealth scholarships or their home government.

For further information contact the School directly or email sfo@contacts.bham.ac.uk (<mailto:sfo@contacts.bham.ac.uk>)

Entry requirements

Learn more about **[entry requirements \(/postgraduate/requirements-dr/step1.aspx\)](#)**

[International students](#)

We accept a range of qualifications from different countries – learn more about **[international entry requirements \(/postgraduate/requirements-dr/step1.aspx\)](#)**

[Standard English language requirements \(/postgraduate/requirements-pgt/international/index.aspx\)](#) apply

How to apply

When clicking on the Apply Now button you will be directed to an application specifically designed for the programme you wish to apply for where you will create an account with the University application system and submit your application and supporting documents online. Further information regarding how to apply online can be found on the [How to apply pages \(http://www.birmingham.ac.uk/students/courses/postgraduate/apply-pg/index.aspx\)](http://www.birmingham.ac.uk/students/courses/postgraduate/apply-pg/index.aspx)

[Apply now \(https://pga.bham.ac.uk/lpages/MDS043.htm\)](https://pga.bham.ac.uk/lpages/MDS043.htm)

Research interests of staff

- **Investigation of the molecular mechanisms underlying chronic neurodegenerative diseases such as Parkinson's and motor neurone disease; candidate gene screening approaches to various neurological disorders.**
Contact: [Professor Karen Morrison \(/staff/profiles/cem/NN/Morrison-Karen.aspx\)](/staff/profiles/cem/NN/Morrison-Karen.aspx)
- **Clinical trials of therapies in Parkinson's and motor neurone disease.**
Contact: [Professor Karen Morrison \(/staff/profiles/cem/NN/Morrison-Karen.aspx\)](/staff/profiles/cem/NN/Morrison-Karen.aspx) [Professor Carl Clarke \(/staff/profiles/cem/NN/Clarke-Carl.aspx\)](/staff/profiles/cem/NN/Clarke-Carl.aspx)
- **Cellular and genetic mechanisms underlying Alzheimer's disease; developmental causes of epilepsy.**
Contact: [Dr Zsuzsanna Nagy \(/staff/profiles/cem/NN/Nagy-Zsuzsanna.aspx\)](/staff/profiles/cem/NN/Nagy-Zsuzsanna.aspx)
- **Acute trauma, and neurodegeneration; understanding mechanisms of natural ageing; evaluation of novel gene- and cell-based therapeutic strategies for central nervous system (CNS) repair.**
Contact: [Professor Ann Logan \(/staff/profiles/cem/NN/Logan-Ann.aspx\)](/staff/profiles/cem/NN/Logan-Ann.aspx)
[Dr Ana-Maria Gonzalez \(/staff/profiles/cem/NN/Gonzalez-AnaMaria.aspx\)](/staff/profiles/cem/NN/Gonzalez-AnaMaria.aspx)
- **Basic mechanisms of temporal lobe epilepsy; fast physiological oscillations associated with cognition; physiology and pathophysiology of prion protein; effects of electric fields on brain function; pathophysiology of X-linked mental retardation.**
Contact: [Professor John Jefferys \(/staff/profiles/cem/NN/Jefferys-John.aspx\)](/staff/profiles/cem/NN/Jefferys-John.aspx)
[Dr Andrew Powell \(/staff/profiles/cem/PPT/Powell-Andrew.aspx\)](/staff/profiles/cem/PPT/Powell-Andrew.aspx)
- **Structure and operation of cortical networks investigated by cellular electrophysiology, immunohistochemistry, and light and electron microscopy; physiological oscillations associated with cognition; basic mechanisms of epilepsy; quantification of synaptic networks.**
Contact: [Professor Attila Sik \(/staff/profiles/cem/NN/Sik-Attila.aspx\)](/staff/profiles/cem/NN/Sik-Attila.aspx)
- **Role of intracellular calcium pools in integration of neuronal functions; mitochondrial function in normal ageing and aged neurons.**
Contact: [Dr Emil Toescu \(/staff/profiles/cem/NN/Toescu-Emil.aspx\)](/staff/profiles/cem/NN/Toescu-Emil.aspx)
- **Basic mechanisms of temporal lobe epilepsy; fast physiological oscillations associated with cognition; neurophysiology of normal ageing.**
Contact: [Dr Martin Vreugdenhil \(/staff/profiles/cem/NN/Vreugdenhil-Martin.aspx\)](/staff/profiles/cem/NN/Vreugdenhil-Martin.aspx)
- **Understanding the fundamental biology of the failure of CNS axon regeneration**
Contact: [Dr Zubair Ahmed \(/staff/profiles/cem/NN/Ahmed-Zubair.aspx\)](/staff/profiles/cem/NN/Ahmed-Zubair.aspx)
- **Role of steroid hormones in intracranial pressure regulation**
Contact: [Dr Alexandra Sinclair \(/staff/profiles/cem/NN/sinclair-alexandra.aspx\)](/staff/profiles/cem/NN/sinclair-alexandra.aspx)
- **Understanding the mechanisms of acute brain injury, and biomarker research for patient stratification and personalised treatment**
Contact: Dr Tony Belli

Employability

Following graduation, Postgraduate Researchers in the College MDS gain employment in a variety of areas though with a majority continuing in research, mostly in Academia but also in the Health, Pharmaceutical, and Biotechnology sectors. Others pursue careers in Education, Publishing, Intellectual Property Protection, Technology Innovation, Business, and more besides.

[Find out more about where our postgraduate students go \(/Documents/college-mds/courses/postgraduate/employability-info/employabilityinfo-cem-jan2014.pdf\)](/Documents/college-mds/courses/postgraduate/employability-info/employabilityinfo-cem-jan2014.pdf)

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