MSc in Translational Pathology (Neuroscience)
www.sheffield.ac.uk/transpath
MSc in Translational Pathology [Neuroscience]

Why Translational Pathology?

The MSc Translational Pathology (Neuroscience) course combines core teaching of the fundamental aspects of the major nervous system diseases, with significant emphasis on the development of practical laboratory skills encompassing histopathology, molecular pathology and microscopy.

You will be trained how to use tissue samples to contribute to neuroscience research aimed at understanding the pathophysiology of nervous system diseases, and discover how laboratory breakthroughs have been translated into clinical benefits. The course will be taught by scientists and Consultant Neuropathologists who are experts in their field, and will offer you the opportunity to undertake neuroanatomy dissection and to work with leading research groups during the research project.

Where will it take me?

This MSc provides a range of subject specific and transferable skills pertinent to a career in academia, diagnostic laboratories or the biotechnology sector.

Our students have entered NHS Healthcare Scientist training programmes, PhD study, Graduate Medicine, Medical Marketing and Literature, Research and Technician posts.

Entry Requirements

1st or 2:1 BSc in relevant science degree  
IELTS of 7 (including 7 in listening) or equivalent.  
A full list of recognised English Qualifications can be seen at https://www.sheffield.ac.uk/undergraduate/policies/englang

Information on Fees

For further details on fees, please go to www.sheffield.ac.uk/transpath  
And click "Fees"

Applications

Please apply online at the following link, selecting Course Code MEDT29.  
http://www.shef.ac.uk/postgraduate/taught/apply/applying

Further information is available on our website, including Frequently Asked Questions.  
www.sheffield.ac.uk/transpath
Why Neuropathology in Sheffield?

Neuroscience spans several faculties and departments, with research groups dedicated to the understanding and treatment of neurological and psychiatric disorders, providing an exciting and world-class research environment for your MSc. Students will be taught and supervised by highly interactive, multidisciplinary research teams of basic and clinical scientists applying state of the art approaches in a variety of disease models and patient cohorts.

The course will be based at the Sheffield Institute for Translational Neuroscience (SITraN), which was opened by Her Majesty the Queen in November 2010. The Institute is an essential development in the fight against motor neuron disease and other common neurodegenerative disorders of the motor system, offering a co-ordinated approach to the development and clinical trialling of new therapies.

The major areas of research interest are in neurodegenerative diseases (diseases of the motor system and dementia); psychiatric disorders (psychoses, including schizophrenia) and clinical neurology (epilepsy, stroke, ataxia, multiple sclerosis). We use disease models, patient material and neuroimaging to understand the molecular, cellular and genetic aspects of disease. The primary research strategy is to develop novel therapeutic approaches which can be translated into clinical applications.

The Department of Neuroscience has a solid track record in the delivery of postgraduate learning and teaching, both at masters and PhD level. Our clinicians and scientists support and deliver learning to over 45 masters and 50 PhD students annually. Students views are sought and acted upon at department and faculty level.
Course structure

The taught component of the MSc is delivered through lectures, tutorial and student-led group work during the first two terms. The 20-week research project in the summer term will allow you to get practical experience of performing hypothesis-led scientific research. This is a full-time course, with all taught modules worth 15 credits and the research project worth 75 credits.

Team Left to Right:
Professor Paul Ince,
Professor Stephen Wharton,
Dr Paul Heath,
Dr Julie Simpson,
Dr Robin Highley,
Mrs Helen Hickson

Course Team

Modules run in conjunction with ¹MSc Translational Neuroscience and ²MSc Molecular and Cellular Basis of Disease
Course modules

**NeuroAnatomy**
You will learn basic and functional neuroanatomy through dissection of the human brain and spinal cord and microscopic examination of histology specimens.

**Basic Principles of Pathology and Histopathology**
You will be trained in histological methods from section cutting through to molecular staining techniques, and discover how histological examination of human tissue provides insight into the underlying pathology of the major neurological diseases.

**Molecular Neuroscience**
You will develop skills in advanced molecular techniques and state-of-the-art informatics for studying gene and protein expression, and will discover how these techniques are applied to investigate the underlying pathology of neurological diseases.

**Ethics and Public Awareness of Science**
You will be introduced to the legislative limitations and ethical influences on biomedical science, and how these are influenced by public attitudes and the scientific community. You will explore your personal views and how they influence your perception of research.

**Pathology and Modelling of Neurodegenerative Disease**
You will explore the cellular and molecular features of neurodegeneration in the major neurological diseases. You will discover how hypotheses can be tested in model systems and utilised to develop new therapeutic strategies.

**Neuroinflammation, Neuro-Oncology & Neurovascular Pathology**
You will explore the underlying pathology and clinical manifestation of the major neuroinflammatory, neuro-oncology and neurovascular diseases, and discover how laboratory breakthroughs have been translated into clinical benefits.

**Literature Review & Critical Analysis of Science**
You will be required to undertake an in-depth survey of the current literature in order to prepare a written essay on a research topic. A series of tutorials and seminars will run alongside to develop your ability to read and understand scientific literature.

**Research Project**
The aim of your project is to apply appropriate laboratory based techniques to test a specific scientific hypothesis and to write up the research in a scientific manner. You should learn to record, interpret and discuss your results and the implications of your findings. You will also be expected to participate in journal clubs, seminars and lab meetings, within the host Department, to complement your laboratory experience.
What skills will I gain?

The MSc in Translational Pathology (Neuroscience) will provide you with a springboard for your future career. You will learn about recent advances in neuroscience and the application of novel approaches, gain laboratory experience with internationally renowned research groups, develop transferable skills, improve your employability, whether following a career in academia, the commercial sector or elsewhere.

**Neuroscience Skills:**
- Neuroanatomy
- Neuropathology
- Histology
- Molecular biology
- Cell biology
- Microscopy
- Image analysis
- Models of human disease
- Analysis of large datasets

**Transferable Skills:**
- Critical analysis
- Time management
- Team working
- Independent researcher
- Problem solver
- Good communicator
- Professional and adaptable
- Reflective
- Self-motivated

What our graduates say?

“The research project is an amazing chance to gain invaluable skills – it exceeded my expectations. It was good to be part of a group and contributing to science.”

“I loved the fact that students lead discussions in class, and the challenges of presenting materials in class.

“Many examples from real lab work with time-relevant techniques.”

“It was a fantastic and unforgettable experience with incredible support from supervisors and lecturers.”

“The demonstration sessions in the dissecting room and seeing a human brain for the first time was a highlight.”

“Excellent student support and a brilliant relationship between lecturers and students.”

MSc Translational Neuroscience & Clinical Neurology students 2012-14
Why Sheffield?

Sheffield is a vibrant city situated in the heart of the UK, adjacent to the Peak District National Park. The city offers a wide variety of culture and entertainment, with theatres, museums and concert venues. The affordable city-centre living is within walking distance to the University, making Sheffield a top destination for you to study.

Why The University of Sheffield?

The University of Sheffield is a world-renowned research intensive university. Founded in 1905, it provides students with an environment where high quality teaching is informed by the latest research developments. The University attracts students from all over the world, as well as the UK and Europe.

Facts and figures

- Rated 69th in the world in the 2014 QS World University Rankings
- Ranked 18th in the UK, 50th in Europe and 121st in the world according to the 2014-15 Times Higher Education World University Rankings
- Ranked 1st in the UK for Biomedical Sciences research (REF2014)
- University of the Year 2011 awarded by Times Higher Education Awards
- First in 2014-15 Times HE Student Experience Survey
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http://www.sheffield.ac.uk/transpath

Departmental Webpages:
http://www.sheffield.ac.uk/neuroscience
http://www.sheffield.ac.uk/sitran

Follow us on Twitter:
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Other Masters Courses Available in Neuroscience:

MSc Translational Neuroscience:
https://www.sheffield.ac.uk/neuroscience/transneuro

MSc Clinical Neurology:
https://sheffield.ac.uk/neuroscience/clinneuro