Course Information Sheet for entry in 2023-24:
DPhil in Clinical Neurosciences

About the course

The DPhil in Clinical Neurosciences offers excellent opportunities for high quality research training, for both clinical and non-clinical graduates, in wide-ranging leading areas of clinical neuroscience.

As a doctoral student in NDCN you will be a part of one of the leading and largest clinical neuroscience departments in Europe. The DPhil in Clinical Neurosciences will develop your skills through a range of research and practical training.

NDCN incorporates six divisions each of which hosts world-leading programmes in basic, translational and clinical research.

- Centre for Prevention of Stroke and Dementia
- Division of Clinical Neurology
- MRC Brain Network Dynamics Unit
- Nuffield Division of Anaesthetics
- Nuffield Laboratory of Ophthalmology
- Wellcome Centre for Integrative Neuroimaging

You will be admitted directly to a particular research area and you will work alongside your supervisors to develop your programme of study which is normally part of a larger research group with shared interests. You will not normally do laboratory rotations.

There are no taught courses examined by written papers but there is a wide range of courses and workshops available across the Medical Sciences Division and you will be encouraged to attend regular departmental and divisional seminars.

Part-time study

It is possible to study for a doctorate on a part-time basis. Completing the DPhil on a part-time basis normally requires between six and eight years of study, compared with a full-time DPhil which normally takes three to four years to complete.

For part-time students on this course, attendance is required for a minimum of thirty days of university-based work each year, to be arranged with the agreement of their supervisor(s), for the period that their names remain on the Register of Graduate Students, unless individually dispensed by the Board. During a candidate's probationary period the attendance arrangements must take account of relevant induction and training events scheduled by the Board. You will have the opportunity to tailor your part-time research in liaison with your supervisor and agree your pattern of attendance.

Supervision

Once enrolled on the DPhil, the allocation of graduate supervision for this course is the responsibility of the Nuffield Department of Clinical Neurosciences and it is not always possible to accommodate the preferences of incoming graduate students to work with a particular member of staff. Under exceptional circumstances a supervisor may be found outside the Nuffield Department of Clinical Neurosciences.

Information about supervisors connected with this course can be found on the NDCN website. In the case of students who require specific help to adjust to an academic programme or to a new range of skills, the supervisor will work with them to ensure that they have additional support. The department is often able to financially support the undertaking of formal skills training that is essential to the successful completion of the DPhil.

In line with the Divisional Code of Practice for supervisors, formal meetings outside the lab between student and supervisor should take place at least once per term (so 3 times per year) whereas meetings with day-to-day supervisors should take place much more frequently (c. 26 times per year, equating to roughly fortnightly). The Graduate Supervision Reporting (GSR) system asks both students and supervisors to record the frequency of meetings during the term retrospectively being reported on.

Assessment

You will begin your course as a probationary research student (PRS) and you will be monitored and assessed regularly via completion of termly reports by you and your supervisors through the Graduate Supervision Reporting (GSR) system.

You will be expected to transfer your status from PRS to DPhil (PhD) before the end of your fourth term if you are a full-time student. Part-time students must complete a minimum of four terms before applying for transfer, with a maximum time limit of 8 terms. For this, you will be required to submit a written report summarising your progress to date, which you will then discuss and defend in an oral examination (a transfer viva).

During your third year you will need to confirm your DPhil status through a formal assessment to ensure that you are on course to complete your studies within the three- to four-year time frame expected for a full-time student. Part-time students cannot transfer before having completed 12 terms, with a maximum time limit of 18 terms. You will be required to give a presentation and attend an interview.

The doctoral work will culminate in a thesis that will be defended in an oral examination (*viva voce*) after three or at most four years from the date of admission.

Changes to courses

The University will seek to deliver this course in accordance with the description set out above. However, there may be situations in which it is desirable or necessary for the University to make changes in course provision, either before or after registration. These may include significant changes made necessary by a pandemic (including Covid-19), epidemic or local health emergency. For further information, please see the University's Terms and Conditions (http://www.graduate.ox.ac.uk/terms) and our page on changes to courses (http://www.graduate.ox.ac.uk/coursechanges).

EPSRC iCASE studentships

The Nuffield Department of Clinical Neurosciences (NDCN), supported by EPSRC, iCASE and a number of industrial partners, is offering a fully-funded studentship.

The studentship includes the opportunity to undertake a work placement with the industrial partner listed for the project. To comply with EPSRC Industrial Case conditions, no application fee will be charged to apply for the project listed below.

More information about iCASE studentships can be found on the UKRI website.

The *How to apply* section of this page provides further information about the application process and links to the application form.

Project:
Motion detection and correction in neuro MRI using RF sensors and learning from k-space data

Supervisors and Industrial Partner

Dr Aaron Hess (NDCN), Prof Jared Tanner (Mathematics) and Dr Boris Maihe (Siemens)

Description

This project will be a collaboration with Siemens Healthineers and is funded by an EPSRC industrial CASE studentship. For more details on the research, see Dr Aaron Hess' profile.

Magnetic Resonance Imaging (MRI) continues to be affected by unintended and physiological movement of the subject. This is because image measurement is slow, tacking between 2 and 10 minutes for a single image. Images corrupted by motion lead to loss of expensive scan time, and reduced operation efficacy.

A number of solutions have been proposed; however, each are tuned to specific acquisitions or to the measurement of specific types of motion (rigid body / cardiac). A recent development uses the RF coils that exist as part of the MRI hardware (1–3). These coils are spatially located around the subject and their electrical characteristics change in relation to changes in nearby tissue (subject motion). Our preliminary work has shown that using a dedicated calibration scan, this data can measure head motion.

However, it is not possible or practical to calibrate these measurements for each subject. Other recent work has demonstrated that raw k-space acquisitions can be used to quantify subject motion(4) using redundant information from multiple receive channels. This method is limited to 3D acquisitions where sufficient parallel imaging redundancy exists. Subject motion is typically characterized by few abrupt changes amongst relatively lengthy static positions. Compressed sensing established that such sparse innovations can be accurately determined from a number of measurements proportional to the number of abrupt changes. This project will combine techniques from compressed sensing with deep learning in order to automate motion detection and compensation so as to optimize the scan rate efficiency, reduce the need for rescanning, and improve overall diagnostic quality by making use of as much acquired data as possible.

This work proposes the application of machine learning methods to quantify motion, with high accuracy and high temporal resolution. This can be achieved by learning the relationship between the RF sensors and motion using the partial information available in the raw k-space data.

This work is at the interface between the academic interests – Hess with RF sensors for motion, Tanner with compressed sensing and deep learning including few-shot learning techniques, and Mailhe/Siemens in optimisation of MRI acquisitions.

Funding for EPSRC iCASE studentships

ICASE students receive funding for a full EPSRC studentship for four years (full time equivalent). If you submit an eligible application for a studentship and you are successful, you will receive a stipend of at least £17,668 to cover living costs and expenses and your course fees will be paid on your behalf for the duration of your fee liability. More information about iCASE studentships can be found on the UKRI website.

Costs

Annual fees for entry in 2023-24

Full-time study

Fee status	Annual Course fees
Home	£8,960
Overseas	£29,700

Part-time study

Fee status	Annual Course fees
Home	£4,480
Overseas	£14,850

Information about course fees

Course fees are payable each year, for the duration of your fee liability (your fee liability is the length of time for which you are required to pay course fees). For courses lasting longer than one year, please be aware that fees will usually increase annually. Information about how much fees and other costs may increase is set out in the University's Terms and Conditions (http://www.graduate.ox.ac.uk/terms).

Course fees cover your teaching as well as other academic services and facilities provided to support your studies. Unless specified in the additional cost information (below), course fees do not cover your accommodation, residential costs or other living costs. They also don't cover any additional costs and charges that are outlined in the additional cost information.

Graduate students who have reached the end of their standard period of fee liability may be required to pay a termly University and/or a college continuation charge.

The University continuation charge, per term for entry in 2023-24 is £572, please be aware that this will increase annually. For part-time students, the termly charge will be half of the termly rate payable by full-time students.

If a college continuation charge applies (not applicable for non-matriculated courses) it is likely to be in the region of £100 to £600 per term. Please contact your college for more details.

Additional cost information

Full-time study

There are no compulsory elements of this course that entail additional costs beyond fees (or, after fee liability ends, continuation charges) and living costs. However, please note that, depending on your choice of research topic and the research required to complete it, you may incur additional expenses, such as travel expenses, research expenses, and field trips. You will need to meet these additional costs, although you may be able to apply for small grants from your department and/or college to help you cover some of these expenses.

Part-time study

Please note that you are required to attend in Oxford for a minimum of 30 days each year, and you may incur additional travel and accommodation expenses for this. Also, depending on your choice of research topic and the research required to complete it, you may incur further additional expenses, such as travel expenses, research expenses, and field trips. You will need to meet these additional costs, although you may be able to apply for small grants from your department and/or college to help you cover some of these expenses.

Living costs

In addition to your course fees, you will need to ensure that you have adequate funds to support your living costs for the duration of your course.

If you are studying part-time your living costs may vary depending on your personal circumstances but you must still ensure that you will have sufficient funding to meet these costs for the duration of your course.

The likely living costs for 2023-24 are published below. These costs are based on a single, full-time graduate student, with no dependants, living in Oxford. We provide the cost per month so you can multiply up by the number of months you expect to live in Oxford.

Likely living costs for one month

	Lower range	Upper range
Food	£300	£470
Accommodation	£715	£860
Personal items	£180	£305
Social activities	£40	£90
Study costs	£35	£80
Other	£20	£35
Total	£1,290	£1,840

Likely living costs for nine months

	Lower range	Upper range
Food	£2,700	£4,230
Accommodation	£6,435	£7,740
Personal items	£1,620	£2,745
Social activities	£360	£810
Study costs	£315	£720
Other	£180	£315
Total	£11,610	£16,560

Likely living costs for twelve months

	Lower range	Upper range
Food	£3,600	£5,640
Accommodation	£8,580	£10,320
Personal items	£2,160	£3,660
Social activities	£480	£1,080
Study costs	£420	£960
Other	£240	£420
Total	£15,480	£22,080

When planning your finances for any future years of study at Oxford beyond 2023-24, it is suggested that you allow for potential increases in living expenses of 5% or more each year – although this rate may vary significantly depending on how the national economic situation develops.

More information about how these figures have been calculated is available at www.graduate.ox.ac.uk/livingcosts.

Document accessibility

If you require an accessible version of the document please contact Graduate Admissions and Recruitment by email (graduate.admissions@admin.ox.ac.uk) or via the online form (http://www.graduate.ox.ac.uk/ask).