

Course Information Sheet for entry in 2025-26: Healthcare Data Science (EPSRC CDT)



Course facts

Mode of study	Full Time Only
Expected length	4 years

About the course

The Oxford EPSRC Centre for Doctoral Training in Healthcare Data Science is a four-year doctoral cohort-based training programme offering opportunities for doctoral study in computational statistics, machine learning, data engineering and infectious disease analytics within the context of ethically-responsible health research.

This course is jointly run by a range of Oxford departments including the departments of Computer Science, Statistics, Engineering Science, the Nuffield Department of Medicine, and the Nuffield Department of Population Health.

The Oxford EPSRC CDT in Healthcare Data Science is based in the Oxford Big Data Institute (BDI) a purpose-built research institute at the heart of the University's biomedical campus.

The Institute combines researchers from genomics, epidemiology, population health, and infectious disease alongside those from computer science, statistics and engineering to develop the field of big data as applied to biomedical research. Scientists working in the Institute form an analytical hub, deeply connected to the wider experimental and clinical community in Oxford and beyond, working to solve some of the major challenges in medical research. The BDI aims to develop, evaluate and deploy efficient methods for acquiring and analysing information at scale and for exploiting the opportunities presented by large-scale studies. Its activity includes, the analysis population scale data, derived from health records, genetics and biomarkers, the analysis of images and application of machine learning, and the analysis of single cells and molecular proteomic and transcriptomic data.

Course structure

The course begins with a training year, which consists of two terms of intensive training in core data science principles and techniques followed by a third term where you will usually undertake two ten-week research projects in two of your chosen research areas. One of these projects will usually become the basis of your doctoral research, carried out in the following three years.

During the first year, your day will typically comprise of lectures each morning with practical computational exercises each afternoon.

The taught courses covering core subjects such as computational statistics, machine learning, data engineering, ethics and governance, and health research methodology include the following:

- Ethics
- Software Engineering
- Statistical Methods
- Research Methods
- Machine Learning
- Bayesian Statistics
- Medical Imaging
- Biomedical Image Analysis
- Biomedical Time Series Analysis
- Device and Sensor Data
- Genetics
- Infectious Diseases
- Modelling for Policy Making
- Data Governance
- Data Engineering
- Health Data Quality
- Health Data Standards
- Data-driven Innovation.

In each case, you will develop an understanding of relevant concepts and techniques that is not only enough to enable their application and integration but will also serve as a solid foundation should you choose to pursue research in that area.

Each term of taught modules concludes with an extended, team-based two-week data challenge where you will work in small groups with clinicians and domain experts to address questions using large healthcare datasets.

At the start of the second term you will usually select from a pool of projects. These projects are proposed by Oxford faculty members but you may also contact faculty members to jointly propose projects. There are always more projects than students, and students are typically matched to, at least, their first choice, but it is not possible to guarantee that you will be able to work with a particular member of staff.

You will usually undertake two ten-week placements with research groups within the University. These will provide you with experience of working as part of an active research group and the opportunity to explore specific areas before writing a proposal for your doctoral research.

At the end of the summer of the first year, you will normally select one of the two projects to become the basis of your DPhil research.

In some cases, we are able to offer studentships that are linked to industrial or partner funding. These studentships are usually linked to a specific research project and supervisor. If you are offered one of these studentships, your DPhil research project will be allocated to you prior to the start of your course.

In years two to four you will carry out individual research on a project within the scope of the programme, specifically the development of novel statistical, machine learning or computational methods with application to health or healthcare data. Training will continue in academic reading, writing and presentation skills, ethics, responsible research and innovation, and career development and planning.

While working on your research project, you will have the opportunity to participate in a range of activities including an ethics placement, four-week external data challenge, seminar series and annual CDT retreats.

Attendance

The course is full-time and requires attendance in Oxford. Full-time students are subject to the University's Residence requirements.

Provision exists for students on some courses to undertake their research in a 'well-founded laboratory' outside of the University. This may require travel to and attendance at a site that is not located in Oxford. Where known, existing collaborations will be outlined on this page. Please read the course information carefully, including the additional information about course fees and costs.

Resources to support your study

As a graduate student, you will have access to the University's wide range of world-class resources including libraries, museums, galleries, digital resources and IT services.

The Bodleian Libraries is the largest library system in the UK. It includes the main Bodleian Library and libraries across Oxford, including major research libraries and faculty, department and institute libraries. Together, the Libraries hold more than 13 million printed items, provide access to e-journals, and contain outstanding special collections including rare books and manuscripts, classical papyri, maps, music, art and printed ephemera.

The University's IT Services is available to all students to support with core university IT systems and tools, as well as many other services and facilities. IT Services also offers a range of IT learning courses for students, to support with learning and research.

The Big Data Institute has dedicated teaching spaces for classes, workshops, group exercises, and presentations, as well as study space for students during their first year. The institute has many large and small meeting rooms, a large café, and an open, furnished atrium, affording space for formal and informal interaction with research groups, other programmes, and partner organisations. You will have access to a secure research computing infrastructure that supports containerised processing, and you will be able to push your own applications to cloud infrastructure provided by partner organisations. There is central support for common applications and services, including a JupyterHub server for Jupyter notebooks.

The institute houses internationally recognised research groups in genomic medicine, medical image analysis, mobile and sensor data, infectious diseases, and large-scale clinical trials. It is also home to the Ethox Centre and the Wellcome Centre for Ethics and Humanities.

When you move out to your DPhil research department you will also have access to the facilities provided by that department. You will remain a member of the CDT and will retain access to the Big Data Institute.

Supervision

The allocation of graduate supervision for this course is the responsibility of the Medical Sciences Doctoral Training Centre (MSDTC) 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 department.

Teaching on taught modules and subsequent research supervision are provided by leading academics from a range of departments at the University. You will benefit from dual supervision for the duration of your research project; at least one of the members of the supervisory team will have a strong background in core data science.

You will have the opportunity to meet your supervisors on a regular basis. These meetings typically take place at least once every two weeks, averaged across the year and agreed by both parties, to discuss your progress.

Assessment

All modules, data challenges and activities during the taught course component involve some aspect of formal assessment, including written reports, problem solving, and group and individual presentations. At the end of year one, you will submit a short DPhil proposal which will be examined orally by the CDT directorate to evaluate your progress and the suitability of the project.

All students will be initially admitted to the status of Probationer Research Student (PRS). Within a maximum of six terms as a PRS student you will be expected to apply for transfer of status from Probationer Research Student to DPhil status. Students who are successful at transfer will also be expected to apply for and gain confirmation of DPhil status within ten terms of admission, to show that your work continues to be on track.

Both milestones normally involve an interview with two assessors (other than your supervisor) and therefore provide important experience for the final oral examination.

You will be expected to submit an original thesis after, at most, four years from the date of admission.

To be successfully awarded a DPhil in Healthcare Data Science you will need to defend your thesis orally (viva voce) in front of two appointed examiners.

Changes to this course

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 you commence your course. These might include significant changes made necessary by any pandemic, 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>).

Costs

Annual fees for entry in 2025-26

Fee status	Annual Course fees
Home	£10,070
Overseas	£33,370

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 2025-26 is £672, 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. Please contact your college for more details, including information about whether your college's continuation charge is applied at a different rate for part-time study.

Additional cost information

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.

Living costs

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

The likely living costs for the 2025-26 academic year 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	£330	£515
Accommodation	£790	£955
Personal items	£200	£335
Social activities	£45	£100
Study costs	£40	£90
Other	£20	£40
Total	£1,425	£2,035

Likely living costs for nine months

	Lower range	Upper range
Food	£2,970	£4,635
Accommodation	£7,110	£8,595
Personal items	£1,800	£3,015
Social activities	£405	£900
Study costs	£360	£810
Other	£180	£360
Total	£12,825	£18,315

Likely living costs for twelve months

	Lower range	Upper range
Food	£3,960	£6,180
Accommodation	£9,480	£11,460
Personal items	£2,400	£4,020
Social activities	£540	£1,200
Study costs	£480	£1,080
Other	£240	£480
Total	£17,100	£24,420

When planning your finances for any future years of study at Oxford beyond the 2025-26 academic year, it is suggested that you allow for potential increases in living expenses of 4% each year – although this rate may vary depending on the national economic situation.

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

Document accessibility

If you require a more accessible version of this 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/form>).