

## Course Information Sheet for entry in 2025-26: Materials 4.0 (EPSRC CDT)



### Course facts

Mode of study	Full Time	Part Time
Expected length	4 years	8 years

### About the course

The Materials 4.0 cohort-based training programme offers a four-year doctoral course (eight-years if studying part-time) focusing on the digitalisation of materials research and innovation to link the digital and physical via cyber-physical systems for prediction, classification, and control of material performance.

This programme aims to train the new generation of doctoral scientists able to work across interfaces between machine learning, informatics, physical and cyber systems and modelling.

The set of skills you will acquire during the programme will enable you to exploit new developments in high-throughput approaches for making, characterising and testing new materials to tackle a broad range of materials science challenges in areas including: 2D materials, advanced metal processing, atoms to devices, biomedical materials, chemical materials design, material systems for demanding environment, electrochemical systems and nuclear materials.

The Materials 4.0 CDT programme has been developed by a consortium led by the Henry Royce Institute together with seven Universities (Strathclyde, Leeds, Manchester, Sheffield, Cambridge, Oxford and Imperial College) and two national institutes (National Physical Laboratory and the Alan Turing Institute).

The programme has a large industrial base collaboration and most of the projects are with industrial partners. The training programme is structured to allow you to engage with your research projects immediately following a residential induction, during which you will begin to build intra- and inter-cohort cohesion. Early commencement of research gives you the opportunity to establish relationships with your supervisors, host research groups and industrial sponsors from the outset.

The training programme interleaves activities with ongoing research, building from basic learning to leadership over four years and is delivered using traditional (face-to-face) and modern (remote online) learning formats.

Part-time pathways (up to 8 years) both University- or industry-based are also offered alongside the traditional full-time engagement programme.

In the first two years as a full-time student (four years if studying part-time), you will learn core skills such as basic programming, data analysis and visualisation, machine learning, research data management, experimental design, and communication and coaching. These core-skill courses will provide you with the personal toolkit required to conduct your research.

In the last two years, (four years if studying part-time) you will take the lead in developing and delivering training materials for the younger students and become an advocate for the digitalisation of materials discovery and manufacturing in industry and academia.

### Attendance

The course can be studied full-time or part-time with both modes requiring attendance in Oxford. Full-time students are subject to the University's Residence requirements. Part-time students are required to attend course-related activities in Oxford for a minimum of 30 days each year.

The full-time course is usually studied over four years. The part-time course is usually studied over eight years.

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 department has excellent and wide-ranging research resources including:

- a world-class suite of electron microscopy facilities including a JEOL ARM analytical STEM, a JEOL 3000F FEG STEM, and two Zeiss Merlin ultrahigh resolution SEMs optimised for EBSD and EDX analysis, together with a number of supporting and training instruments. Much of this equipment is installed in the David Cockayne Centre for Electron Microscopy;
- additional electron microscopy facilities are available at the national electron Physical Science Imaging Centre;
- extensive further facilities for characterising materials including, for example, AFM, XPS, and Raman microscopy;
- advanced sample preparation and micromachining facilities including a Zeiss NVision 40 FIB/SEM and three other FIB instruments;
- microhardness measurement facilities (at high temperatures and at the nm scale);
- special processing or manufacturing facilities for ceramics, composites, carbon nanomaterials, rapidly solidified materials and devices such as novel batteries
- superb facilities for 3-D atom probe analysis (including LEAP 5000XS and LEAP 5000XR);
- an alloy processing and mechanical properties laboratory, for aerospace and nuclear materials; and
- a wide range of specialist modelling software including some operated by the Materials Modelling Laboratory, and access to Oxford's High Performance Computing resources.

The department's Institute for Industrial Materials and Manufacturing, located at the University's Begbroke Science Park, offers world-class facilities for advanced materials processing. The Begbroke site also houses a number of materials-related spinout companies.

The Oxford Materials Characterisation Service provides a major suite of equipment for the characterisation of materials used in microtechnology and nanotechnology.

In addition to the excellent central and college library provision, there is a specialist Materials Science Library housed within the department.

## Supervision

The allocation of graduate supervision for this course is the responsibility of the Department of Materials 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 from outside the Department of Materials.

Typically, you should expect to have meetings with your supervisor or a member of the supervisory team with a frequency of at least once every two weeks averaged across the year. The regularity of these meetings may be subject to variations according to the time of the year, and the stage that you are at in your research programme.

## Assessment

The first 18 months are a probationary period, soon after which, subject to satisfactory progress, you will normally transfer from Probationer Research Student (PRS) to full DPhil status. The probationary period for part-time students will be normally be two years in duration. A second formal assessment of progress, Confirmation of Status, takes place later in the programme, normally at the start of the fourth year for full-time students. The Transfer of Status and Confirmation of Status assessments are conducted by two members of staff other than the student's supervisor(s) or advisors.

Examination for the DPhil takes place at the end of the programme by means of a written thesis and an oral examination.

## 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

#### Full-time study

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

#### Part-time study

Fee status	Annual Course fees
Home	£5,035
Overseas	£16,685

### 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

#### 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 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.

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 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
<b>Food</b>	£330	£515
<b>Accommodation</b>	£790	£955
<b>Personal items</b>	£200	£335
<b>Social activities</b>	£45	£100
<b>Study costs</b>	£40	£90
<b>Other</b>	£20	£40
<b>Total</b>	£1,425	£2,035

### Likely living costs for nine months

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

### Likely living costs for twelve months

	Lower range	Upper range
<b>Food</b>	£3,960	£6,180
<b>Accommodation</b>	£9,480	£11,460
<b>Personal items</b>	£2,400	£4,020
<b>Social activities</b>	£540	£1,200
<b>Study costs</b>	£480	£1,080
<b>Other</b>	£240	£480
<b>Total</b>	£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](http://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](mailto:graduate.admissions@admin.ox.ac.uk)) or via the online form (<http://www.graduate.ox.ac.uk/ask/form>).