Course Information Sheet for entry in 2022-23: DPhil in Particle Physics

About the course

The work of this world-class sub-department is in experimental particle physics, particle astrophysics and accelerator physics. Particle physics is the study of basic constituents of matter and their interactions. This is accomplished either directly with accelerators that create the particles under study or by observing high-energy particles from outer space.

The sub-department is one of the largest in the UK and is well equipped to carry out research in a wide range of topics, from the study of new particles produced at high energy accelerators to neutrinos, dark matter and dark energy in the Universe. The sub-department's experiments are carried out at facilities around the world, in Switzerland, Japan, the USA and Canada.

You will spend half the first year on a lecture course in addition to starting your research and, if appropriate, spend your second year on-site at your experiment. Laboratories here in Oxford and experiments at overseas facilities provide access to a high-tech environment and excellent research training, directly applicable to a broad range of fields.

The world's biggest accelerator, the Large Hadron Collider (LHC) at CERN, is running and in 2012 the Higgs boson, a particle thought to give mass to all elementary particles, was discovered. The understanding of its properties is one of the main aims of the ATLAS experiment. The Oxford group is also focused on the search of new particles predicted in Supersymmetry and other beyond the Standard Model theories. Elucidation of CP violation, one of the mysteries of particle physics, is the aim of the sub-department's other LHC experiment, LHCb. Both experiments will require you to obtain and analyse data from the highest-energy machine in the world.

The sub-department is also involved in the study of neutrino oscillations and neutrino properties at the T2K experiment in Japan, MicroBooNe & DUNE in the USA, and at the Sudbury Neutrino Observatory (SNO+) in Canada.

The sub-department has participated in direct searches for dark matter for many years and studentships are now available associated to the LZ project. Recently it has begun a programme in collaboration with the sub-department of astrophysics to elucidate the nature of dark energy with the Large Synoptic Survey Telescope (LSST).

The future of particle physics relies on the development of new instruments for detecting particles and novel ideas in accelerator physics. The sub-department is heavily involved in the development of these areas. It has outstanding facilities to build the new silicon detectors needed for the luminosity upgrade of the LHC and other applications.

The sub-department is playing a major role in the ProtoDune experimental program at CERN, which is designed to test and validate the Liquid Argon Time Projection Chamber technologies for the construction of the DUNE Far Detector at the Sanford Underground Research Facility (SURF).

Furthermore, through the John Adams Institute, students can engage in a range of projects on accelerators which would be used in high energy physics, nuclear physics, as X-ray sources, and in medical applications.

Supervision

The allocation of graduate supervision for this course is the responsibility of the Department of Physics 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 of Physics.

You will be allocated at least one supervisor who should be your primary contact for guidance throughout your research degree. Research students join an existing research group which typically consists of academics, postdocs, fellows and current students. Students will meet with supervisors regularly. This could be in person, via email, or video conferencing.

Assessment

All students will be initially admitted to the status of Probationer Research Student (PRS). Within a maximum of six terms as a PRS student and normally by the fourth term you will be expected to apply for transfer of status from Probationer Research Student to DPhil status.

A successful transfer of status from PRS to DPhil status will require satisfactory attendance and completion of problem sets during your first two terms. Submission on a report and thesis outline. Students who are successful at transfer will also be expected to apply for and gain confirmation of DPhil status within nine terms of admission, to show that your work continues to be on track.

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

The actual DPhil viva requires you to submit a [substantial and original] thesis not exceeding 250 pages after three or at most four years from the date of admission. To be successfully awarded a DPhil in particle physics you will need to defend your thesis orally (viva voce) in front of two appointed examiners.

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).

Expected length of course

	Full Time Only
Expected length	3 to 4 years

Costs

Annual fees for entry in 2022-23

Fee status	Annual Course fees
Home	£8,620
Overseas	£28,560

Further details about fee status eligibility can be found on the fee status webpage (http://www.graduate.ox.ac.uk/feestatus).

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 2022-23 is £548, 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

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, 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 2022-23 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

	Likely living costs for 1 month		Likely living costs for 9 months		Likely living costs for 12 months	
	Lower range	**Upper range**	**Lower range**	**Upper range**	**Lower range**	**Upper range**
Food	£290	£410	£2,610	£3,690	£3,480	£4,920
Accommodation	£680	£810	£6,120	£7,290	£8,160	£9,720
Personal items	£135	£260	£1,215	£2,340	£1,620	£3,120
Social activities	£45	£120	£405	£1,080	£540	£1,440
Study costs	£45	£100	£405	£900	£540	£1,200
Other	£20	£55	£180	£495	£240	£660
Total	£1,215	£1,755	£10,935	£15,795	£14,580	£21,060

When planning your finances for any future years of study at Oxford beyond 2022-23, you should allow for an estimated increase in living expenses of 3% each year.

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).