

Physics and Philosophy Information Sheet for entry in 2020

This course combines the most rigorous and fundamental subjects in the sciences and the arts. Physics is concerned with unravelling the complexities of the universe from the smallest to the largest scale. Philosophy deals with foundational questions of the most general kind: what there is, what we know and how we came to know it, and how we ought to act and structure our lives. Central to both subjects is the development and application of clear and precise thinking to foundational problems, the questioning of received wisdom and the critical articulation of ideas which aim for an understanding of how things are, in the broadest possible terms.

Physics and Philosophy are historically intertwined and each continues to contribute to developments in the other. Philosophy played a crucial role in the two revolutions of 20th-century physics – namely, relativity and quantum mechanics – and continues to contribute both to foundational research in theoretical physics and to the articulation and critique of scientific method. Conversely, discoveries in physics provide profound implications for philosophical inquiry, such as the nature of space and time and the behaviour of matter at the quantum realm. Students on this course can expect to investigate not only central developments in both subjects, but also this interplay.

Oxford has one of the largest physics departments in the UK, with over 100 academics leading research that spans the breadth of physics. This expertise ensures the curriculum is updated in the light of developments in research. The Philosophy Faculty is the largest in the UK, with more than 70 full-time members; it admits around 450 undergraduates annually to read the various degrees involving Philosophy.

The Oxford research group in Philosophy of Physics is the largest in the world, with interests ranging from classical space-time theories and foundations of classical statistical mechanics, to quantum mechanics, quantum field theory and quantum gravity.

Philosophy of Physics runs through the first three years of the course. In the first year students delve into 18th-century investigations into matter and motion; in Years 2 and 3 they investigate the philosophical foundations of relativity and quantum mechanics. The fourth-year MPhysPhil options bring you to the threshold of current research. In this year students may specialise in either Physics or Philosophy, or continue with a combination, including advanced study in the Philosophy of Physics. Alternatively, students may complete the course in three years, leaving with a BA.

A typical week

Your work will be divided between independent study, tutorials, two or three classes and about ten lectures each week. Independent study (reading for and writing essays, completing problem sets) will take up the majority of your working time. Tutorials typically take the form of 2-4 students discussing themes arising from essays or problem sets with a tutor in the students' college. Lectures and classes are typically held in either the Department of Physics or Faculty of Philosophy.

UNDERGRADUATE ADMISSIONS AND OUTREACH

University Offices, Wellington Square, Oxford OX1 2JD



Tutorials are usually 2-4 students and a tutor. Class sizes may vary depending on the options you choose. There would usually be no more than around 10 students though classes for some of the more popular papers may be up to 20 students. Most tutorials, classes, and lectures are delivered by staff who are tutors in their subject. Many are world-leading experts with years of experience in teaching and research. Some teaching may also be delivered by postgraduate students who are usually studying at doctorate level.

To find out more about how our teaching year is structured, visit our [Academic Year](#) page.



Course structure

| YEAR 1 | |
|---|---|
| <p>CURRENT COURSES</p> <ul style="list-style-type: none"> • Physics <ul style="list-style-type: none"> ○ Mechanics and special relativity ○ Differential equations and matrix algebra ○ Calculus and waves • Philosophy <ul style="list-style-type: none"> ○ Elements of deductive logic ○ General philosophy ○ Introductory philosophy of physics | <p>ASSESSMENT</p> <p>First University examinations: three written papers in Physics; two written papers in Philosophy</p> |
| YEAR 2 | |
| <p>CURRENT COURSES</p> <ul style="list-style-type: none"> • Physics <ul style="list-style-type: none"> ○ Thermal physics ○ Electromagnetism ○ Quantum physics ○ Mathematical methods ○ Physics practicals • Philosophy <ul style="list-style-type: none"> ○ Early modern philosophy <i>or</i> Knowledge and reality ○ Philosophy of special relativity | <p>ASSESSMENT</p> <p>Final University examinations, Part A: three papers in Physics; satisfactory lab work</p> |
| YEAR 3 | |
| <p>CURRENT COURSES</p> <p>Core topics:</p> <ul style="list-style-type: none"> • Physics - choose two of the following: <ul style="list-style-type: none"> ○ Symmetry and relativity ○ General relativity ○ Classical mechanics • Philosophy - compulsory topics: <ul style="list-style-type: none"> ○ Philosophy of science ○ Philosophy of quantum mechanics <p>Extra subjects, choose:</p> <ul style="list-style-type: none"> • Either two Physics papers from: <ul style="list-style-type: none"> ○ The remaining core subject not chosen ○ Atomic and laser physics ○ Computational and experimental projects ○ Condensed matter physics ○ Fluids | <p>ASSESSMENT</p> <p>Final University examinations, Part B: three or four written papers in Philosophy; one or two written papers and one short paper in Physics</p> |



| | |
|---|---|
| <ul style="list-style-type: none"> ○ Nuclear and particle physics ● Or one Philosophy paper from a range of options | |
| YEAR 4 | |
| <p>RESEARCH Three units chosen in any combination from the lists for Physics and Philosophy, including an advanced philosophy of physics option.</p> | <p>ASSESSMENT Final University examinations, Part C: a mix of three written papers and essays, or thesis (in Philosophy), or project (in Physics)</p> |
| <p><i>The options listed above are illustrative and may change. More information about current options is available on the Physics and Philosophy websites.</i></p> | |

The University will seek to deliver each course in accordance with the descriptions 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. For further information, please see the University’s Terms and Conditions.

MMathPhys YEAR 4

The Physics and Mathematics Departments jointly offer an integrated master’s level course in Mathematical and Theoretical Physics. Physics and Philosophy students are able to apply for transfer to a fourth year studying entirely mathematical and theoretical physics, completing their degree with an MMathPhys. The course offers research-level training in: Particle physics, Condensed matter physics, Astrophysics, Plasma physics and Continuous media. mmathphys.physics.ox.ac.uk

Fees

These annual fees are for full-time students who begin this undergraduate course here in 2020.

| Fee status | Annual Course fees |
|--|--------------------|
| Home/EU | £9,250 |
| Islands (Channel Islands & Isle of Man) | £9,250 |
| Overseas | £28,330 |

Information about how much fees and other costs may increase is set out in the University's Terms and Conditions.

Please note that the course fees you pay include your fees for both University and college services and are divided between the University (including your department or faculty) and your college on a formula basis. More information is provided in your Terms and Conditions.

Additional Fees and Charges Information for Physics and Philosophy

There are no compulsory costs for this course beyond the fees shown above and your living costs.

Living costs

Your living costs will vary significantly dependent on your lifestyle. These are estimated to be between £1,135 and £1,650 per month in 2020-2021. Each year of an undergraduate course usually consists of three terms of eight weeks each but you may need to be in Oxford for longer. As a guide you may wish to budget over a nine-month period to ensure you also have sufficient funds during the holidays to meet essential costs.

Living costs breakdown

| | Per month | | Total for 9 months | |
|-------------------------------------|---------------|---------------|--------------------|----------------|
| | Lower range | Upper range | Lower range | Upper range |
| Food | £270 | £385 | £2,430 | £3,465 |
| Accommodation (including utilities) | £630 | £760 | £5,670 | £6,840 |
| Personal items | £130 | £245 | £1,170 | £2,205 |
| Social activities | £45 | £110 | £405 | £990 |
| Study costs | £40 | £95 | £360 | £855 |
| Other | £20 | £55 | £180 | £495 |
| Total | £1,135 | £1,650 | £10,215 | £14,850 |

In order to provide these likely living costs, the University and the Oxford University Students' Union conducted a living costs survey to complement existing student expenditure data from a variety of sources including the UK government's Student Income and Expenditure Survey and the National Union of Students (NUS). The likely lower and upper ranges above are based on a single student with no dependants living in college accommodation (including utility bills) and are provided for information only.

When planning your finances for future years of study at Oxford beyond 2020-21, you should allow for an estimated increase in living expenses of 3% each year.