

Course Information Sheet for entry in 2025-26: MSc in Medical Physics with Radiobiology



Course facts

Mode of study	Full Time Only
Expected length	1 year

About the course

The MSc in Medical Physics with Radiobiology is a one-year, full-time course, designed for individuals interested in a careers in medical physics from either a clinical or academic research perspective, or in professions that require a knowledge of medical physics, such as radiation protection. It is accredited by the Institute of Physics and Engineering in Medicine (IPEM).

The main aim of this course is to discuss how ionising and non-ionising radiation are used in clinical practice, both in the context of radiotherapy and medical imaging. This is combined with principles of radiobiology at molecular and cellular level, to give graduates a better understanding of the effects of radiation than is achieved in other medical physics courses.

The course is based on a series of overarching learning outcomes, which you will be able to demonstrate on completion of your studies:

- Explain the underpinning physics which governs the interactions between ionising radiation and biological tissues
- Critically analyse the effects of ionising radiation on DNA and the associated DNA damage response, with respect to their effects on cell survival
- Critically appraise the irradiation response of cells and tissues, including the factors that modify this response, with respect to how this may affect clinical practice
- Critically discuss the implementation of radiation safety precautions, with respect to the mechanism of damage from radiation exposure, and the legislative requirements which govern radiation protection
- Explain the mechanisms of action of a range both ionising and non-ionising radiation imaging technologies, with respect to their clinical use
- Use fundamental physics of radiation action to analyse the effects of clinical radiotherapy technologies and techniques
- Critically evaluate new developments in ionising and non-ionising imaging, and clinical radiotherapy
- Critically appraise the role of simple and advanced analytical techniques within medical physics research
- Explain and evaluate the research approaches used in applied and translational research within the field of medical physics
- Apply the scientific method to address research questions within the field of medical physics

Course structure

Online short courses

Most students on this course will have a physics undergraduate degree. Prior to the start of Michaelmas term, you will be signed up to two online, self-paced, short courses which cover all of the basic principles of biology and human anatomy that you will need to get to grips with to help you with the biology elements of the course. You will need to pass a short online test on these concepts part way through the term.

Compulsory modules

You will take eight compulsory modules, which are delivered in two-week blocks, following on from each other.

1. Physics of Radiation Interactions
2. Molecular Radiation Biology
3. Radiobiology of Cells and Tissues
4. Radiation Safety
5. Ionising Radiation Imaging Technologies
6. Radiation Therapy Physics
7. Non-ionising Radiation Technologies
8. Translational Research Methods and Applications

Modules one to four are delivered in Michaelmas term and build a picture of the biological responses to radiation from the sub-atomic level through to the effects on whole tissues, in both tumours and normal tissue, and will link this to radiation protection requirements for both patients and workers.

Modules five to eight are delivered in Hilary term and cover the application of physics in clinical practice across both imaging and radiotherapy. This will include discussion of new and emerging modalities and how these approaches are translated from the lab into clinical practice.

Balance of teaching

You can expect to receive seven to eight lectures and three to four tutorial or practical classes per module. There will also be preparatory reading, independent study tasks, and formative assessments set throughout the course, to be completed in the non-contact hours. Alongside the module specific tutorials, you will also attend a series of compulsory Directors' Tutorials throughout the year. These cover overarching themes such as critiquing a scientific paper, or presentation skills, and help to prepare you for specific assessment methods, including the dissertation.

Attendance

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

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.

You will have access to the Oncology Education Hub, which includes dedicated lecture and tutorial rooms at the heart of the department, alongside an open plan, unassigned seating workspace for masters and first year DPhil students.

There is a programme of departmental seminars and poster presentation events, which are open to staff and students. The Oncology Student Network coordinate a programme of student only activities, including both academic and social events.

Supervision

The allocation of graduate supervision is the responsibility of the Department of Oncology and it is not always possible to accommodate the preferences of incoming graduate students to work with a particular member of staff. A supervisor may be found outside the Department of Oncology.

You will be assigned a Director of Studies from the course team, who will help you review your progress, and discuss any concerns you have; your Director of Studies and the course administration team will usually be your first port of call for any queries about your studies. You will also have an advisor at your Oxford college, to whom you can turn if you feel you need to discuss your progress, or anything else pertinent to your study, away from the course team.

During the research project you will be allocated a project supervisor who will be responsible for your supervision and training. This supervisor will usually be from the Department of Oncology or the Oxford University Hospitals NHS Trust. We would recommend arranging meetings with your supervisor to take place at least every two weeks.

Assessment

Taught modules are assessed by a mixture of submitted coursework, presentations, and timed assessments such as examinations. The taught modules are assessed at the end of the term in which they are delivered. The dissertation is assessed by a written thesis and a poster presentation at the end of the academic year.

You will have the opportunity to submit formative assignments to develop your writing and presenting skills and receive feedback prior to completing your summative assessed work.

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	£14,910
Overseas	£34,120

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 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>).