

STUDY PHYSICS AT IMPERIAL

Why should I study Physics at Imperial College London?



Very selective intake means that you will be in a class with other very bright and talented students

.....



You will be taught by world-leading experts

.....



Wide range of options and projects available in active areas of current physics research

.....



Emphasis on mathematics as well as the underlying concepts

.....



Very strong global profile

DEPARTMENT OF PHYSICS

942

Physics Undergraduates
in 2020–21



PHYSICS DEGREES

5

Physics Undergraduate degrees



What physics degrees does Imperial offer?

Imperial offers both BSc and MSci physics degrees:

MSci

The MSci (sometimes called MPhys elsewhere) is an integrated four-year undergraduate programme which includes a major research project and a wide range of advanced options in the fourth year and gives a Masters-level qualification. It is the usual route to a professional career in Physics, including progression to a PhD.

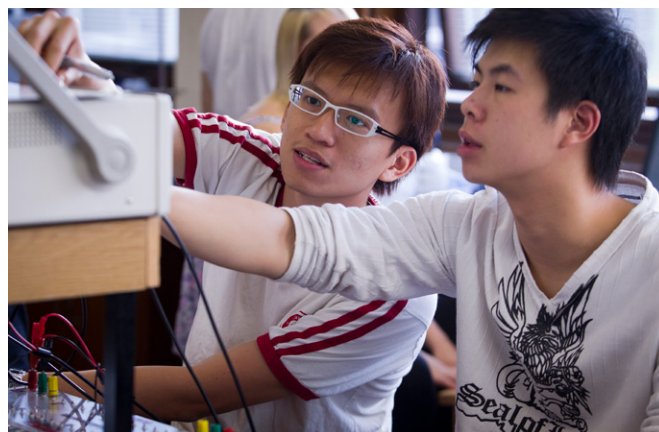
BSc

The three-year BSc may be preferred by those who don't necessarily expect to be using advanced physics in their day-to-day careers but who value the numerical, logical thinking and problem solving skills that a wide range of employers like to see in physics graduates, while still receiving an excellent physics education. The BSc followed by a one-year postgraduate MSc gives an alternative route to Masters level.

Do I need to choose when I apply?

At Imperial, the degree programmes are structured so that the final choice between MSci and BSc does not need to be made until the start of Year 3, though applicants who are unsure are recommended to start on an MSci.

Specifically, Imperial offers five different degree programmes in Physics



Qualification and title	Length	Course code
BSc Physics	3 years	F300
MSci Physics	4 years	F303
BSc Physics with Theoretical Physics	3 years	F325
MSci Physics with Theoretical Physics	4 years	F390
MSci Physics with a Year Abroad	4 years	F309

Our BSc and MSci degrees with Theoretical Physics will be attractive to those who wish to specialise in the more mathematical and theoretical branches of physics. That said, it's still possible to transfer between the 'with Theoretical Physics' and standard 'Physics' degrees during the first two years.

The MSci with a Year Abroad gives students the opportunity to spend their third year at one of our partner universities abroad.

Within our degrees there are a large number of advanced options to choose from, so that there is great freedom for specialisation without tying yourself down to specific course titles.

Designing your Physics Course at Imperial

Our Physics degrees are structured around a compulsory core, which covers the essential elements of the subject, followed by specialist or option courses, which allow you to focus on specific areas.

At Imperial, “core physics” is taught in the first three years, with more courses being chosen from Options as you progress through the years. This leaves most of the third and fourth years available for you to develop your specialities. This is possible because of our selective intake and very wide research coverage.

Many universities appear to offer a wide range of options, but sometimes they are clustered into specific streams. This can greatly reduce your actual choice. Subject to some minor timetable constraints and guidance by the Senior Tutor, you will have a free choice at Imperial and the range and coverage is outstanding.

For more details and a full list of options, please refer to the [Course Table](#) document.

EXAMPLE

Take, for example, an MSci student who already knows that she/he wants to specialise in Astronomy or Astrophysics:



**YEAR
1**

Select a First Year Project offered by the Astrophysics or Space and Atmospheric research groups. Recent projects have included:

- Orbits around black holes
- Investigating a massive cluster of galaxies
- The kitchen sink heliosphere

**YEAR
2**

Select the option Sun, Stars and Planets, which gives a good introduction to astronomy and astrophysics.

Alternatively, learning a language can be a real asset to a scientist who joins an international collaboration, or you might take Mathematical Methods if your interests are more in theoretical astrophysics.

**YEAR
3**

Astrophysics is the main course that establishes the physics of stars and galaxies. The option on Plasma Physics treats both astrophysical plasmas (in stars) and man-made plasmas.

Principles of Instrumentation would be a good course to take as it is applicable to instrumentation used with telescopes. Optical Communications Physics also covers related themes.

**YEAR
4**

Select an MSci Project offered by the Astrophysics or Space & Atmospheric research groups. Recent MSci Project titles have included:

- Dust in local galaxies from Herschel and Planck
- Galaxy sizes as a probe of cosmology
- Stellar microvariability
- Magnetic explosions in the solar wind

Select options from Cosmology, Advanced Particle Physics, General Relativity, Space Physics, Atmospheric Physics.

i

This is just a possible selection of courses and projects, not a defined ‘stream’. **It will be up to you to decide**, in consultation with your Personal Tutor, the Senior Tutor, and other staff, which would be your best choice.

PHYSICS TEACHING

Physics teaching at Imperial

LECTURES

Lectures are central to university teaching. At Imperial, you will have typically around ten lectures per week. They focus on specific areas of physics and mathematics depending on the lecture courses you are following at the time. We augment the lectures with Seminars, Small Group Tutorials and Office Hours, as well as Laboratory and Computing sessions.

SEMINARS

Run in groups of 20–60 students, seminars are led by an academic with one or more teaching assistants and involve a range of activities including problem solving and active discussion. University physics is all about understanding the subject, not about getting a perfect set of notes, hence it is very important to ask questions!

Seminars are also used for developing professional skills such as making presentations and working as part of a team.

Blackett Lecture Theatre 2



SMALL GROUP TUTORIALS

are typically 5 students, give you the opportunity to ask more questions and solidify your understanding of the lectures.



OFFICE HOURS provide you with an additional opportunity to visit the lecturers to clear up points arising from the lectures. Every lecturer has two Office Hours per week while their course is running.



LABORATORY SESSIONS

teach you important experimental skills and allow you to see the same physics in practice that you have learned about in the lecture. You will be supported by demonstrators who are members of the academic staff, research workers, or research students.



COMPUTING is an essential tool for any modern physicist. We teach you to program in Python and how to use it to solve physics problems. No prior knowledge of computing is assumed.



Will I do any project work during my degree?

Yes – projects are an important way for you to develop your scientific skills and to pursue your own interests.

At Imperial most students do a short project in their first year and a substantial one in their final year. As most projects are done in one of the research groups, they give you a first-hand experience of what research is all about.

Where will I be taught?

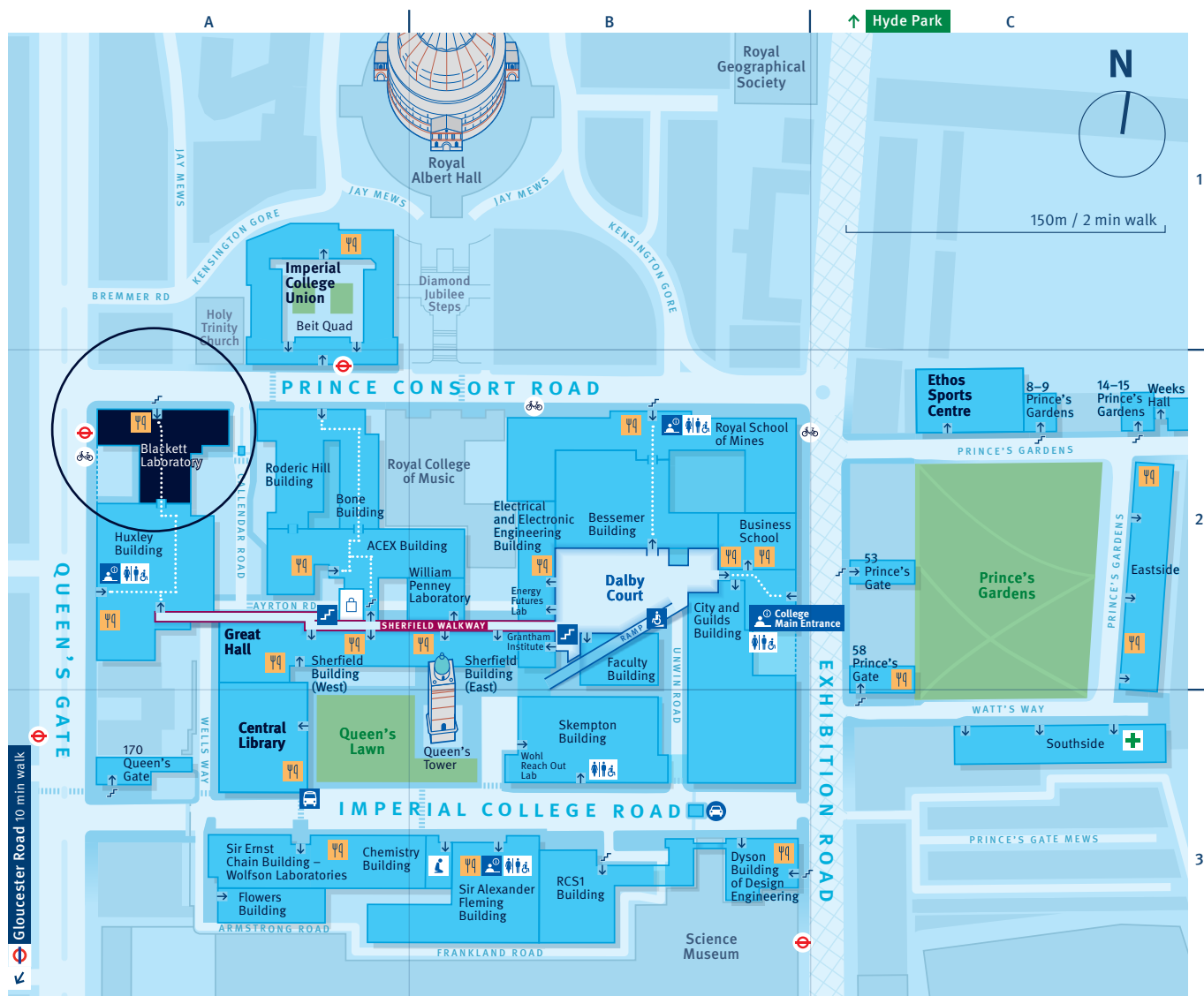
Imperial's Department of Physics is housed in the **Blackett Laboratory**, a building purpose-built for physics research and teaching at our **South Kensington Campus**. This means that everything you need is under one roof – your lecture theatres, laboratories, lecturers, tutors, computing suite, everything! So no need to have to rush across campus (or even across the town) to get to your next class.



Blackett Laboratory, South Kensington



Physics student Sofia in South Kensington



OUTSIDE OF CLASS

1

Year in College
Accommodation
Guaranteed

Where will I live?

Student accommodation guarantees you one year in College Accommodation which will give you an opportunity to make friends, explore your new surroundings and concentrate on your studies. In later years groups of students who have become friends in their first year typically rent flats privately together. The student accommodation office provides much support and advice with this process.

www.imperial.ac.uk/study/campus-life/accommodation/prospective/ug/

An Imperial student in Halls of Residence



Will there be anyone to turn to?

At Imperial you will have a Personal Tutor, who will monitor your academic progress and give you support and guidance. Personal Tutors stay with you throughout our course. Other help is available from the Physics Department's Senior Tutor, Student Liaison Officer, Disability Officer, the Faculty College Tutors, The Union and from the College's Student Counsellors.

What is student life like?

If and when you visit a university, try to meet some undergraduates and ask them about the plusses and minuses of student life. Ask whether they find the staff to be approachable and friendly. If you receive an offer, we will invite you to an Offer Holder Day where you will be able to speak with current undergraduate students. Use this opportunity to get a first-hand impression.

Check out the **Student Union**. Imperial College Union offers over 300 different clubs and societies, offering sports and social activities for everyone, one of the largest choices in the UK. Remember, you will be in the best part of one of the world's major cities with unrivalled opportunities for entertainment and cultural life of all kinds. Music and the arts are outstandingly good at Imperial and in London.

www.imperialcollegeunion.org



Imperial College Union Building

AND AFTERWARDS?

A degree from Imperial College has a very high standing world-wide. It will open doors for you. It could be the start of a successful career in research, industry or business. Many of our graduates have gone on to make a name for themselves. You can check for more information at

www.imperial.ac.uk/careers



APPLY TO IMPERIAL



How to apply to Imperial Physics programmes

You will need to apply through **UCAS** before the application deadline which is in January. We will then consider your application, and you will receive the decision by mid-March.

www.ucas.com

What A-Levels will I need?

For 2022 our minimum entry requirement is A*A*A in three full A Levels (A* grade in Mathematics, and A*A including Physics and a third A Level, excluding Critical Thinking or General Studies). In practice the offer conditions are usually higher than this. In 2020 over 50% of our intake achieved at least three A* grades. Depending on numbers, we may have some flexibility when A Level results are released in August to reconsider a few applicants.

We also welcome applications from candidates with Scottish Advanced Highers, International Baccalaureate, Cambridge Pre-U, as well as overseas qualifications giving university entrance in other countries. We take on students from all over the world (in 2021 from 35 countries) accepting well-qualified students from other national educational systems, not just A-levels.

General College guidance on international qualifications can be found at

www.imperial.ac.uk/study/ug/apply/requirements



Admissions Test

As part of the 2021 admissions cycle, all applicants will be invited to take an online Admissions Test, which will take place after the application deadline. It will cover only standard school mathematics and physics. You will receive details of the test and instructions on how to take it after you have applied. The results will be used alongside other information to select candidates for offers. Please note that the test does not require intense revision or coaching to prepare for it, as success relies much more on understanding than memory.





OPEN DAYS

The best way to experience what our Department is like is to attend one of our Open Days. To find out when they take place, and to reserve a place, visit:

www.imperial.ac.uk/study/ug/visit/open-days

You can also take a virtual Imperial360 tour of the Department:
360-visit.imperial.ac.uk/direct/department-of-physics



More Information

You can find more information about our degree programmes and studying at Imperial in our Prospectus:

www.imperial.ac.uk/study/prospectus

or the Physics Department website:

www.imperial.ac.uk/physics/students/admissions/undergraduate-admissions

If you have more specific questions, the Admissions Tutor Professor Arttu Rajantie, and the Deputy Admission Tutor Dr Mark Richards are happy to answer them. You can email them at:

ph.admissions@imperial.ac.uk

