UNIVERSITY OF LIVERPOOL

BSc (Hons)

Physics with Astronomy with a Year Abroad

UCAS code F3F6

Entry requirements	Study mode	Duration
A level: ABB	Full-time	4 years

Apply by: **29 January 2025**
Starts on: **22 September 2025**

About this course

The BSc (Hons) Physics with Astronomy is taught jointly by world-leading academics from the University of Liverpool and Liverpool John Moores University. The three-year Physics and Astronomy degree gives students a wide appreciation of the varied astronomical phenomena in the physical Universe.

Introduction

From the formation, evolution and deaths of stars (involving planetary systems, nucleosynthesis and supernovae) through structure of galaxies to the evolution of the Universe itself, the degree structure introduces the physics involved in the cosmos.

Anyone who is curious about the fundamental laws of nature will enjoy Physics. It is one of the few disciplines that really challenge our view of the world. For example, in relativity we find that space and time are entangled and that clocks run slowly under the influence of a gravitational field. When we examine the world on a microscopic scale, we are in the realm of quantum mechanics, where the predictions, such as wave-particle duality, even seem strange to the physicists who study its foundations.

The three-year Physics and Astronomy degree will equip students with skills relevant for jobs in a wide range of careers, from education, research, finance and the city to industry.

The two-metre aperture Liverpool Telescope located in the Canaries, which is the largest robotically controlled telescope in the world, will provide you with unique access to observations from a major research facility when you undertake a research project in your final year.

There are opportunities to work alongside our internationally renowned academics at projects at the LHC at CERN and in many international and national research centres in the USA, Canada, Japan, Korea and many European countries.

Our flexible programmes allow students to transfer up to the end of year two between any of the physics programmes.

What you'll learn

- How to explore and apply the fundamental principles of physics
- Numeracy skills
- Problem solving skills
- Ability to reason clearly and communicate effectively

Accreditation

This programme is accredited by the Institute of Physics, which means it satisfies the academic requirements for Chartered Physicist status.

Accreditation in detail

Institute of Physics

This programme is accredited by the Institute of Physics, which means it satisies the academic requirements for Chartered Physicist status. The Institute of Physics

is the professional body for physics in the UK and Ireland.

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Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

Year one

The first year starts with a one-week project to familiarise you with the staff and other students. There will be two Maths modules in each of the first two years; these are designed to provide the Mathematical skills required by Physics students.

Modules

Compulsory modules	Credits
DYNAMICS AND RELATIVITY (PHYS101)	15
THERMAL PHYSICS AND PROPERTIES OF MATTER (PHYS102)	15
ELECTRICITY, MAGNETISM AND WAVES (PHYS103)	15
FOUNDATIONS OF QUANTUM PHYSICS (PHYS104)	15
INTRODUCTION TO COMPUTATIONAL PHYSICS (PHYS105)	7.5
PRACTICAL PHYSICS I (PHYS106)	15
MATHEMATICS FOR PHYSICISTS I (PHYS107)	15
MATHEMATICS FOR PHYSICISTS II (PHYS108)	15
INTRODUCTION TO ASTROPHYSICS (PHYS155)	7.5

Programme details and modules listed are illustrative only and subject to change.

Year two

In year two you will broaden your understanding of physics and astronomy, with modules designed to ensure you have mastered the full range of physics concepts

Modules

Compulsory modules	Credits
ELECTROMAGNETISM I (PHYS201)	15
CONDENSED MATTER PHYSICS I (PHYS202)	15
QUANTUM AND ATOMIC PHYSICS I (PHYS203)	15
NUCLEAR AND PARTICLE PHYSICS (PHYS204)	15
COMPUTATIONAL PHYSICS (PHYS205)	15
OBSERVATIONAL ASTROPHYSICS (PHYS216)	15
MATHEMATICS FOR PHYSICISTS III (PHYS207)	15
STELLAR PHYSICS (PHYS251)	15

Programme details and modules listed are illustrative only and subject to change.

Year abroad (year three)

You are required to spend the year abroad on an approved placement at a European or overseas partner institution.

Programme details and modules listed are illustrative only and subject to change.

Year four

The fourth year comprises a mix of core modules and many optional modules in physics. You'll undertake a research project with a member of staff.

Modules

Compulsory modules	Credits
QUANTUM AND ATOMIC PHYSICS II (PHYS361)	15
ADVANCED OBSERVATIONAL ASTROPHYSICS (PHYS362)	15
ELECTROMAGNETISM II (PHYS370)	15
PHYSICS OF GALAXIES (PHYS373)	15
RELATIVITY AND COSMOLOGY (PHYS374)	15
STATISTICAL THERMODYNAMICS (PHYS393)	7.5
PROJECT (BSC) (PHYS379)	30

Optional modules	Credits
COMPUTATIONAL MODELLING (PHYS305)	15
STELLAR ATMOSPHERES (PHYS352)	7.5
PHYSICS OF PLANETS (PHYS355)	7.5
PHYSICS INTERNSHIP (PHYS309)	15
SOLID STATE PHYSICS (PHYS363)	7.5

Optional modules	Credits
ENERGY GENERATION AND STORAGE (PHYS372)	7.5
NUCLEAR PHYSICS (PHYS375)	15
NUCLEAR POWER (PHYS376)	15
PARTICLE PHYSICS (PHYS377)	15
MATERIALS PHYSICS AND CHARACTERISATION (PHYS387)	7.5
SEMICONDUCTOR APPLICATIONS (PHYS389)	7.5
MAGNETIC PROPERTIES OF SOLIDS (PHYS399)	7.5

Programme details and modules listed are illustrative only and subject to change.

Teaching and assessment

How you'll learn

Our research-led teaching ensures you are taught the latest advances in cutting-edge physics research. Lectures introduce and provide the details of the various areas of physics and related subjects. You will be working in tutorials and problem-solving workshops, which are another crucial element in the learning process, where you put your knowledge into practice. They help you to develop a working knowledge and understanding of physics. All of the lecturers also perform world class research and use this to enhance their teaching.

Most work takes place in small groups with a tutor or in a larger class where staff provide help as needed. Practical work is an integral part of the programmes, and ranges from training in basic laboratory skills in the first two years to a research project in the third or fourth year. You will undertake an extended project on a research topic with a member of staff who will mentor you. By the end of the degree you will be well prepared to tackle problems in any area and present yourself and your work both in writing and in person. In the first two years students take

maths modules which provide the support all students need to understand the physics topics.

How you're assessed

The main modes of assessment are coursework and examination. Depending on the modules taken you may encounter project work, presentations (individual or group), and specific tests or tasks focused on solidifying learning outcomes.

Liverpool Hallmarks

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

The Liverpool Curriculum framework sets out our distinctive approach to education. Our teaching staff support our students to develop academic knowledge, skills, and understanding alongside our **graduate attributes**:

- Digital fluency
- Confidence
- Global citizenship

Our curriculum is characterised by the three **Liverpool Hallmarks**:

- Research-connected teaching
- Active learning
- Authentic assessment

All this is underpinned by our core value of **inclusivity** and commitment to providing a curriculum that is accessible to all students.

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Careers and employability

A physics degree is a great starting point for a physics related career, engineering and computing careers.

The knowledge, skills and experience that our you'll develop during your degree are in demand by employers. Graduates have gone on to explore careers in areas as diverse as:

- Telecommunications
- Microelectronics
- Nuclear power
- Instrumentation
- Cryogenics
- Astronomy
- Geophysics
- Medical physics
- Materials science
- Computing
- Teaching
- Business
- Finance
- Management.

Progressing to research

The Department of Physics attracts considerable research income, creating excellent opportunities to progress to a research degree, particularly in the fields of condensed matter physics, nuclear physics, particle physics, nanoscience and energy.

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Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

Tuition fees

UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)

Full-time place, per year - £9,535
Year abroad fee - £1,430 (applies to year in China)

International fees

Full-time place, per year - £29,100
Year abroad fee - £14,550 (applies to year in China)

The tuition fees shown are correct for 2025/26 entry. Please note that the year abroad fee also applies to the year in China.

Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support. Learn more about paying for your studies.

Additional costs

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This could include buying a laptop, books, or stationery.

Find out more about the additional study costs that may apply to this course.

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Entry requirements

The qualifications and exam results you'll need to apply for this course.

A levels

ABB including Physics and Mathematics at A level.

Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is **BBB** with **A** in the EPQ.

You may automatically qualify for reduced entry requirements through our contextual offers scheme. Based on your personal circumstances, you may automatically qualify for up to a two-grade reduction in the entry requirements needed for this course. When you apply, we consider a range of factors – such as where you live – to assess if you're eligible for a grade reduction. You don't have to make an application for a grade reduction – we'll do all the work.

Find out more about how we make reduced grade offers.

If you don't meet the entry requirements, you may be able to complete a foundation year which would allow you to progress to this course.

Available foundation years:

- Physical Sciences (4 year route including a Foundation Year at Carmel College) BSc (Hons)

T levels

T levels are not currently accepted.

GCSE

4/C in English and 4/C in Mathematics

Subject requirements

For applicants from England: For science A levels that include the separately graded practical endorsement, a "Pass" is required.

BTEC Level 3 National Extended Diploma

Applications considered alongside A levels. Please contact the University for

further information.

International Baccalaureate

33 points that must include 6 points each from Physics and Mathematics at Higher level.

Irish Leaving Certificate

H1, H2, H2, H2, H3, H3 including Physics and Mathematics at H2 or above.

Scottish Higher/Advanced Higher

Advanced Highers accepted at grades ABB including Physics and Mathematics.

Welsh Baccalaureate Advanced

Accepted at grade B, including Mathematics and Physics A Levels at AB.

Access

45 Level 3 credits in graded units in a relevant Diploma,including 30 at Distinction and a further 15 with at least Merit. GCSE grades 4/C in English and 4/C in Mathematics also required. 15 Distinctions are required in each of Mathematics and Physics.

International qualifications

Select your country or region to view specific entry requirements.

If you hold a bachelor's degree or equivalent, but don't meet our entry requirements, you could be eligible for a Pre-Master's course. This is offered on campus at the University of Liverpool International College, in partnership with Kaplan International Pathways. It's a specialist preparation course for postgraduate study, and when you pass the Pre-Master's at the required level with good attendance, you're guaranteed entry to a University of Liverpool master's degree.

English language requirements

You'll need to demonstrate competence in the use of English language, unless you're from a majority English speaking country.

We accept a variety of international language tests and country-specific qualifications.

International applicants who do not meet the minimum required standard of English language can complete one of our Pre-Sessional English courses to achieve the required level.

IELTS

6.0 overall, with no component below 5.5

TOEFL iBT

78 overall, with minimum scores of listening 17, writing 17, reading 17 and speaking 19. TOEFL Home Edition not accepted.

TOEFL Paper

Grade 6 at Standard Level or grade 5 at Higher Level

Duolingo English Test

115 overall, with speaking, reading and writing not less than 105, and listening not below 100

Pearson PTE Academic

59 overall, with no component below 59

LanguageCert Academic

65 overall, with no skill below 60

Cambridge IGCSE First Language English 0500

Grade C overall, with a minimum of grade 2 in speaking and listening. Speaking and listening must be separately endorsed on the certificate.

Cambridge IGCSE First Language English 0990

Grade 4 overall, with Merit in speaking and listening

Cambridge IGCSE Second Language English 0510/0511

0510: Grade C overall, with a minimum of grade 2 in speaking. Speaking must be separately endorsed on the certificate. 0511: Grade C overall.

Cambridge IGCSE Second Language English 0993/0991

0993: Grade 5 overall, with a minimum of grade 2 in speaking. Speaking must be separately endorsed on the certificate. 0991: Grade 5 overall.

Cambridge ESOL Level 2/3 Advanced

169 overall, with no paper below 162

LanguageCert

Grade 4 at Standard Level or grade 4 at Higher Level

Pre-sessional English

Do you need to complete a Pre-sessional English course to meet the English language requirements for this course?

The length of Pre-sessional English course you'll need to take depends on your current level of English language ability.

Pre-sessional English in detail

If you don't meet our English language requirements, we can use your most recent IELTS score, or the equivalent score in selected other English language tests, to determine the length of Pre-sessional English course you require.

Use the table below to check the course length you're likely to require for your current English language ability and see whether the course is available on campus or online.

Your most recent IELTS score	Pre-sessional English course length	On campus or online
5.5 overall, with no component below 5.5	6 weeks	On campus
5.5 overall, with no component below 5.0	10 weeks	On campus and online options available
5.0 overall, with no component below 5.0	12 weeks	On campus and online options available
5.0 overall, with no component below 4.5	20 weeks	On campus
4.5 overall, with no component below 4.5	30 weeks	On campus
4.0 overall, with no component below 4.0	40 weeks	On campus

If you've completed an alternative English language test to IELTS, we may be able to use this to assess your English language ability and determine the Pre-sessional English course length you require.

Please see our guide to Pre-sessional English entry requirements for IELTS 6.0 overall, with no component below 5.5, for further details.

Alternative entry requirements

- If your qualification isn't listed here, or you're taking a combination of qualifications, contact us for advice
- Applications from mature students are welcome.

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