Course Summary: March 27, 2026

Physics BSc Honours

- UCAS code: **F300**
- Full time
- 3 years

Explore the fundamental laws of the universe, from sub-atomic particles to astrophysics.

You are currently viewing course information for entry year: **2026**

Next start date:

- September 2026

Tuition fees (Year 1)

- Home: **£9,790**
- International: **£31,500**

Entry requirements and offers

- A-Level: **AAB**

- IB: **34 points**

UCAS Institution name and code:

- NEWC / N21

Undergraduate Open Day

Start your university journey. Find where you belong. Friday, June 26 (9:00-16:00) Saturday, June 27 (9:00-16:00)

Book your place now

Course overview

Study physics in the natural universe with the guidance of our world-leading academics.

During your three-year Physics BSc, you'll study:

- relativity
- quantum mechanics
- particle physics
- physics in emerging technologies
- cutting edge experimental techniques, e.g. cryogenics and material science experiments

You'll gain hands-on experience in our refurbished, high-spec laboratories, designed to reflect modern research environments. We've invested £2.7 million in our facilities, with specialist spaces such as a dark lab and a cryogenics lab, alongside large, state-of-the-art teaching laboratory equipped with industry-standard equipment.

You won't just observe experiments - you'll design, test and troubleshoot them yourself, building the practical confidence and technical expertise that employers and research teams value.

By the end of your degree, you'll have a strong understanding of physics and advanced mathematics as well as skills in coding and communications. You'll be prepared for a range of careers in research, industry, and beyond.

Why study Physics BSc at Newcastle?

You'll learn in a supportive, people-focused environment that helps you thrive from day one:

- you'll benefit from our dedicated Transition team, who'll help you move confidently from school to university-level study, so you can settle in quickly and succeed
- high levels of contact time mean you'll spend more time learning with others
- our academic staff are friendly, approachable, and committed to your progress
- you'll be taught by recognised researchers in astrophysics, quantum matter, cosmology, and emerging technology and materials - they bring fresh ideas into the classroom and support you throughout your degree

Flexible degree structure

Our flexible degree structure allows you to tailor your studies. All students follow the same curriculum in Stage 1, with specialisations beginning in Stage 2. You can transfer between Physics disciplines until the end of Stage 1. You can also switch between the BSc and MPhys of your chosen discipline until the end of Stage 2:

- Theoretical Physics BSc
- Physics with Astrophysics BSc

You'll graduate with an accredited degree and an interdisciplinary skillset in-demand with employers. This course is also ideal for someone who is interested in pursuing research or further study in physics or mathematics.

BSc or MPhys?

Physics is offered at two levels:

- three-year Bachelor of Science (BSc)
- four-year Master of Physics (MPhys)

Our MPhys degree has an extra year of advanced study at Master's level. You'll study more advanced topics and work on an extended project. You'll learn about research methodology and work with experts in their field.

Your course and study experience - disclaimers and terms and conditions
Please rest assured we make all reasonable efforts to provide you with the programmes, services and facilities described. However, it may be necessary to make changes due to significant disruption, for example in response to Covid-19.

View our Academic experience page, which gives information about your Newcastle University study experience for the academic year 2025-26.

See our terms and conditions and student complaints information, which gives details of circumstances that may lead to changes to programmes, modules or University services.

Quality and ranking

Professional accreditation and recognition

All professional accreditations are reviewed regularly by their professional body.

Modules and learning

Modules

The information below is intended to provide an example of what you will study.

Most degrees are divided into stages. Each stage lasts for one academic year, and you'll complete modules totalling 120 credits by the end of each stage.

Our teaching is informed by research. Course content may change periodically to reflect developments in the discipline, the requirements of external bodies and partners, and student feedback.

Optional module availability
Student demand for optional modules may affect availability.

Full details of the modules on offer will be published through the Programme Regulations and Specifications ahead of each academic year. This usually happens in May.

To find out more please see our terms and conditions

During your first year, you'll take introductory modules in physics and mathematical techniques, building a strong foundation for more advanced study. You'll explore physics first-hand in our high-spec labs, conducting experiments, testing ideas, and uncovering results for yourself.

Modules

Compulsory Modules	Credits
Introductory Algebra	10
Introductory Calculus and Differential Equations	20
Multivariable Calculus	10
Dynamics	10

Introductory Astrophysics	10
Introductory Electromagnetism	10
Introductory Quantum Mechanics	10
Laboratory Physics 1	20
States of Matter, Waves & AC Theory	20

You'll continue learning about the core concepts of physics, including quantum mechanics and electromagnetism. You'll also be introduced to new physical theories and behaviours that build on your taught modules, with a strong focus on experimental design, troubleshooting, and analysing results which are essential skills for modern scientific research.

Modules

Compulsory Modules	**Credits**
Principles of Quantum Mechanics	10
Vector Calculus	10
Differential Equations, Transforms and Waves	10
Principles of Electromagnetism	10
Principles of Materials and Solid-State Physics	10
Laboratory and Professional Skills in Physics	20
Thermodynamics & Statistical Mechanics	20
Scientific Computation with Python	10
Astronomy with Data	20

During your final year, you'll study more advanced modules and work on two different projects.

You will choose multiple optional modules.

Modules

Compulsory Modules	Credits
Advanced Quantum Mechanics	10
Relativity and Fundamental Particles	10
Advanced Materials and Solid-State Physics	10
Atoms, Molecules, and Nuclei	10
Team Project	10
Individual Project	20
Experimental Physics for Industrial Applications	10
Optional Modules	**Credits**
Geohazards and Deformation of the Earth	10
Fluid Dynamics I	10
Mathematical Biology	10
Quantum Information	10
Methods for Differential Equations	10
Variational Methods and Lagrangian Dynamics	10
Classical Fields	10
Advanced Astronomy	10
Stellar Structure and Evolution	10
Cosmology	10
High Energy Astrophysics and Black Holes	10

Teaching and assessment

Teaching methods

You'll learn through a mix of interactive teaching and guided practice, designed to help you build confidence and think independently. Methods include:

- **lectures and seminars** - learn key concepts and discuss their real-world applications small group tutorials
- **get personalised support** and deepen your understanding problem classes; practise solving challenging physics and mathematical problems
- **laboratory sessions** - gain hands-on experience with experiments and equipment
- **practical computing sessions** - apply computational methods to model, analyse, and solve problems

In Stage 1, you'll work on experiments and projects in our labs. These practical sessions will be about 45 hours in total.

Assessment methods

You'll be assessed through a combination of:

- Assessments
- Examinations – practical or online
- Projects
- Reports

Skills and experience

Practical experience

This degree will give you practical skills that you can apply across a wide range of industries. You'll also develop highly valued attributes such as:

- problem-solving
- time management

- resilience
- the ability to meet deadlines

Using our high-spec facilities, and working alongside our expert staff, you'll:

- gain experimental experience in our state-of-the-art laboratories
- work on lab and project-based modules, based on real-world challenges
- develop analytical and computational skills, using industry-relevant software
- enhance your written and oral communication skills
- learn from experts in the field at a leading Russell Group university

Business skills

Physics graduates are highly valued for their analytical depth and technical expertise. You'll graduate with the confidence and capability to:

- solve complex problems using logical, evidence-based approaches
- apply a rigorous, analytical mindset to unfamiliar challenges analyse and interpret large datasets using computational and statistical approaches
- use programming techniques to model systems, automate analysis, and test solutions communicate complex ideas clearly to both technical and non-technical audiences
- work collaboratively in teams to deliver results

You'll have the opportunity to apply for a year-long industry placement, applying your skills in a professional setting and gaining valuable insight into the sector. Students studying Physics have completed a placement year at companies such as:

- GE Ventura Wildlife
- DWP
- Perspective Financial Group

Research skills

In your final year you'll complete an individual project. You'll have the opportunity to perform independent investigations into a topic of interest.

We have an interdisciplinary approach to research. Our academic staff are experts in their field, with a diverse range of research strengths.

We have research expertise in:

- novel electronic materials
- semiconductor devices
- nanoscale properties of materials
- computational physics
- quantum fluids
- quantum matter
- observational astrophysics
- astrophysical fluids
- cosmology
- quantum gravity

Research areas in the School of Mathematics, Statistics and Physics

Student stories

Scott, Theoretical Physics graduate, shares the highlights of his course, why he chose Newcastle, and advice for new students.

Read about Scott's experience studying Physics BSc

Adam, a 2022 graduate, shares his highlights of studying Physics at Newcastle.

Read about Adam's experience studying Physics BSc

Opportunities

Study abroad year

Experience life in another country by choosing to study abroad as part of your degree. You'll be encouraged to embrace fun and challenging experiences, make connections with new communities and graduate as a globally aware professional, ready for your future.

You can choose to spend up to a year studying at a partner institution overseas. Our overseas partner institutions include:

- Universiteit Leiden, Leiden, Netherlands
- Technisches Universitat Munchen, Munich, Germany
- Institut National Des Sciences Appliques De Rennes, Rennes, France
- Lappeenranta University of Technology, Lappeenranta, Finland
- Humboldt-Universität zu Berlin, Berlin, Germany

There are also lots of options in North America, Australia and Asia, including:

- State University of New York (SUNY) Buffalo, Buffalo, USA
- University of New South Wales, Sydney, Australia
- Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong
- National University of Singapore, Singapore
- University of Florida, Florida, USA
- San Jose State University, California, USA
- Korea University, Seoul, South Korea
- National Taiwan Normal University, Taipei, Taiwan

During your time studying abroad, you will select from a range of modules offered by your host university. Alongside taking some subject-relevant modules, you will be given greater flexibility to choose modules from different disciplines (eg Languages, Business)

If you choose to study abroad, it will extend your degree by a year.

Find out more about study abroad

Short-term global opportunities

During your degree, you can take part in short-term global opportunities in locations such as:

- USA
- Cyprus
- Hong Kong
- Singapore
- Sri Lanka

The activities range from four days to eight+ weeks, and include:

- summer schools
- internships
- volunteering
- experiential learning

Funding is available to support students who want to participate.

Work placement

Apply your practical skills, increase your confidence and gain real-life work experience to accelerate your career. Take a 9-12-month industrial placement in

the UK or abroad. Work placements usually take place in stage 3 of your studies and extend your degree by one year.

Find out more about work placements.

Facilities and environment

Facilities

As a physics student at Newcastle University, you'll be based at our city-centre campus in the School of Mathematics, Statistics and Physics' Herschel Building.

The school has high-specification laboratory facilities equipped with leading experimental and computational physics capabilities, as well as access to world-class telescopes and space missions, such as:

- cryogenics labs
- semiconductor labs
- High-Performance Computing
- data from the Vera Rubin Telescope
- dark lab
- NASA's Kepler/K2, TESS
- JWST space telescopes ESA's PLATO space mission

The Herschel Building also has dedicated study and social spaces, and a computing area.

Find out more about our facilities, including a 360 tour

Support

We take your health and wellbeing seriously and are committed to supporting you throughout your studies so you can fulfil your potential at university. This support includes:

- a personal tutor who is an academic member of staff who can help you with academic and personal issues throughout your degree

- a peer mentor scheme which pairs you with a current student from your course to help you navigate your first year at university
- a staff-student committee, to give you an opportunity to have a say in how your degree works
- Student Wellbeing Advisors who can offer comprehensive listening and support and signpost you to other University support services or external support agencies

Transition team

A dedicated member of the team will be there to support you as you move from school to university study.

The Transition Officer works with Year 1 undergraduates to provide:

- Year 1 pastoral and academic support
- weekly drop-ins
- training sessions on report writing and professionalism

You'll also benefit from our:

- induction programme, including social events, to help you settle in quickly
- activities and events run by our student-run society, PhysSoc
- peer supported academic drop-in sessions to help with assignments

Your future

Join a network of successful graduates

Our graduates have gone on to work as:

- power systems engineers
- research software engineers
- programmers
- tax associates
- consultants

Employability is embedded throughout your degree, with opportunities to connect with alumni and employers each year. All physics students are invited to attend the annual WRIPA Physics Careers Fair, a major event that brings together employers actively seeking physics graduates.

Our graduates are well-prepared for careers in research and academia, but many also move into fast-growing and diverse sectors in the North East and beyond, including:

- advanced materials and semiconductors

- defence
- energy transition, infrastructure and electrification
- fibre-optics and communications
- space, satellite technology, and earth observation

In addition, physics graduates are highly valued in a range of other fields such as:

- accounting
- banking and financial services
- data analytics
- energy: nuclear and offshore
- engineering: consulting and manufacturing
- IT and software development
- management consultancy
- NHS medical physics
- teaching
- telecommunications
- traffic and transport management
- utilities, including the water sector

Many of our students also go on to further study, including teacher training or PhD programmes in physics and related disciplines.

Our links with industry

The Department of Physics has extensive research and alumni links with leading companies and external organisations. These connections help inform our teaching and support student networking and career development opportunities.

Our industry links include:

- BBC
- Cosm (Digistar)
- De Beers
- Engineering and Physical Sciences Research Council (EPSRC)
- European Southern Observatory (ESO)
- European Space Agency (EUCLID Space Observatory)

- FreeAgent
- Intel
- Johnson Matthey
- Jumping Rivers
- James Webb Space Telescope (JWST)
- Met Office
- Mind Foundry
- National Audit Office
- National Space Centre
- NICD
- Northern Gas Networks
- Oliver Wyman
- Phase Photonics
- Science and Technology Facilities Council (STFC)
- Vera C. Rubin Observatory (LSST)

Make a difference

Careers support

Our Careers Service is one of the largest and best in the country, and we have strong links with employers. We provide an extensive range of opportunities to all students through our ncl+ initiative.

Visit our Careers Service website

Recognition of professional qualifications outside of the UK

If you're studying an **accredited degree** and thinking about working in Europe after you graduate, the best place to find current information is the UK Government's guidance on recognition of UK professional qualifications in EU member states. This official resource explains whether your profession is

regulated in another country, what steps you need to take, and which organisation you should contact.

Find out more...

- Go online for information about our full range of degrees: **www.ncl.ac.uk/undergraduate**
- Watch videos about student life in Newcastle by visiting our YouTube channel at **www.youtube.com/@newcastleuni**
- Watch a virtual tour of our campus at **https://youtu.be/vJUfHcqB7l8?si=8IUrf7kTxXbgdfr1**
- Book for an Open Day to come and see us in person **www.ncl.ac.uk/openday**
- Contact us online at **www.ncl.ac.uk/enquiries** or phone +44 (0)191 208 3333

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