Physics

NGS 2018
91% OVERALL SATISFACTION IN PHYSICS AND ASTRONOMY

OUTSTANDING FACILITIES INCLUDING OUR STATE-OF-THE-ART STEMLAB

PAID PLACEMENTS WITH THE WORLD’S TOP COMPANIES
From the description of everyday and exotic natural phenomena to generating almost all of today’s technologies, physics has had the most transformative effect of any discipline. It can easily be argued that physics is the most important of the sciences in shaping the world around us today. Technologies such as the simple lightbulb to advanced technologies such as the mobile phone would simply not exist without this subject. Physics goes much further than this though as it is a discipline that seeks to determine the laws of nature itself.

A physics degree provides the necessary foundation to understand the world around us – from the fundamental particles and the behaviour of black holes to the workings of microchips.

At Loughborough you will join a community of physicists who are deeply involved in both fundamental research and in shaping the next generation of technologies that will transform the world around us. We are passionate about instilling within our students the physical insight and confidence to shape tomorrow’s world.

Our courses in physics will provide you with an integrated and coherent development in the subject. These courses take advantage of recent changes to national standards (to which Loughborough actively contributed), and reflect the University’s research strengths in quantum physics, condensed matter, statistical physics and the physics of materials.

The opportunity to take a salaried professional placement between your second and final year is available on all our courses and could really boost your employability.

You will enjoy access to state-of-the-art laboratories, including those within our recently opened STEMlab – a £17 million investment in STEM laboratories that has greatly enhanced the facilities available for our Loughborough physics students and our ability to train future generations of highly-skilled, highly-employable STEM graduates for work in vital industries.

**Contents**

- Physics at Loughborough 01
- Your Physics department 02
- Women in Physics 03
- Excellent opportunities 04
- Outstanding student support 04
- Our courses 06
- Placements and careers 10
- The Loughborough Experience 12
Your Physics department

The Department of Physics is located in the West Park of the University campus and boasts excellent teaching facilities.

Students taking engineering modules will benefit from the University’s extensive laboratories and workshops, while the University’s £17 million investment in STEMlab has brought further state-of-the-art teaching facilities to the campus, including an optics laboratory and our physical sciences lab that allows you to explore the fundamentals of mechanics, electricity and magnetism, quantum phenomena, waves, solid state and thermal physics.

There has also been a further £4 million investment in refurbished laboratory space for physics students, ensuring we are able to provide our students with a high-quality learning experience.

In addition to our well-equipped laboratories, Loughborough also has its own campus observatory.

For work on your experimental final year projects we are also able to offer access to various specialist research facilities and labs.

Women in Physics

Loughborough University holds the Athena SWAN Bronze award, recognising its commitment to improving the representation and career progression of women in STEM (science, technology, engineering and mathematics) subjects.

The Department of Physics is committed to creating a diverse and inclusive culture in which students are able to thrive, regardless of their gender, and has applied for June Practitioner status in recognition of our actions to address the underrepresentation of women in university physics. As Loughborough University Physics student you will be invited to attend the Claudia Parsons lecture – our annual celebration of women in STEM. You will be benefit from the support of our peer mentoring scheme and have the opportunity to attend Women in Physics events all over the country.

You will also be encouraged to take part in outreach activities and work as an ambassador at open days (for example, at our Women in Science drop-in sessions), inspiring prospective students just like you.
Excellent opportunities

At Loughborough you will become part of an academically stimulating and supportive student environment that seeks to provide social opportunities as well as opportunities to broaden your knowledge.

You could join the award-winning Loughborough Space Society or pursue your passion for gaming or technology with societies for Esports, videogames, robotics and drones – or choose from the wide array of extracurricular activities, volunteering opportunities and sporting clubs available!

The Department of Physics also hosts the prestigious Sir Nevill Mott lecture series, bringing internationally renowned physicists on to campus to deliver truly inspiring presentations.

Outstanding student support

Our approachable teaching staff operate an open-door policy. If you have further questions to ask your lecturers, you can always ask them during or after a lecture, or, if the lecturer is not in, email them to make an appointment. You will also be able to get further help and guidance in tutorials with your Academic Tutor.

In addition, you can find support for some of the challenging mathematics you may encounter at university with our award-winning Mathematics Learning Support Centre.

As a Loughborough student you will benefit from the University’s well-established support services, covering all aspects of student life, including our Counselling and Disability Service, Student Advice and Support Centre, and careers and employability support.
Many technologies from the simple lightbulb through to all aspects of the modern smartphone would simply not exist without the profound connection behind engineering physics. This course builds on core physics teaching with the study of modern engineering methods, allowing students to immerse themselves into innovative projects with the support of brand new, world-class facilities and equipment.

The opening of STEMLab provides students in this course with unique opportunities to undertake innovative engineering physics projects supported by facilities across disciplines such as electrical engineering, materials science and additive manufacture – at one of the UK’s leading universities for engineering.

For more information and modules, visit: www.lboro.ac.uk/undergraduate

**MPhys (Hons)** 4 years full-time
UCAS code: F312

**MPhys (Hons) DIS/DIntS** 5 years full-time sandwich
UCAS code: F313

**BSc (Hons)** 3 years full-time
UCAS code: F311

**BSc (Hons) DIS/DIntS** 4 years full-time sandwich
UCAS code: F382

*Typical offers*

**A level:** MPhys: AAB (including Mathematics and Physics) / BSc: ABB (including Mathematics and Physics).

**IB:** MPhys: 35 (6,6,5 HL) / BSc: 34 (6,5,5 HL) including Mathematics and Physics at HL.

**BTEC Level 3 National Extended Diploma in Applied Science:** DDD with Distinctions in mandatory units 1-5 plus A Level Maths grade B.

*DIS: Diploma in Industrial/International Studies*

### Mathematics and Physics

There is a profound connection between physics and mathematics. It is not simply that mathematics is a useful tool, but as put by Galileo Galilei, that "The book of nature is written in the language of mathematics". This course gives you the opportunity to learn and think as both physicist and mathematician, providing an appreciation of the world around us through a deeper understanding of both disciplines.

On this course you will study a core physics programme alongside additional modules in pure and applied mathematics, including a final year research project. Drawing on the University’s expertise in mathematics, physics, materials science and engineering, the wide-ranging optional modules in the final year allow you to tailor the course to your own areas of interest, while your project enables you to conduct guided independent research at the cutting edge of the discipline.

For more information and modules, visit: www.lboro.ac.uk/undergraduate

**MPhys (Hons)** 4 years full-time
UCAS code: F344

**MPhys (Hons) DIS/DIntS** 5 years full-time sandwich
UCAS code: F345

**BSc (Hons)** 3 years full-time
UCAS code: F341

**BSc (Hons) DIS/DIntS** 4 years full-time sandwich
UCAS code: F340

*Typical offers*

**A level:** MPhys: AAB (including Mathematics and Physics) / BSc: ABB (including Mathematics and Physics).

**IB:** MPhys: 35 (6,6,5 HL) / BSc: 34 (6,5,5 HL) including Mathematics and Physics at HL.

**BTEC Level 3 National Extended Diploma in Applied Science:** DDD with Distinctions in mandatory units 1-5 plus A Level Maths grade B.

*DIS: Diploma in Industrial/International Studies*
Physics

Motivated by a desire to reflect and take advantage of Loughborough’s research strengths in quantum physics, condensed matter, statistical physics and the physics of materials, the core Physics course has recently been revised from the ground up and structured to provide what we believe will be an exciting and academically outstanding course.

The Physics degree at Loughborough offers the maximum flexibility to study optional modules from across our suite of physics courses. If you want to study the widest breadth of subjects, or do not yet wish to decide on a particular focus, then this is the course for you!

For more information and modules, visit: www.lboro.ac.uk/undergraduate

Physics with Theoretical Physics

The power of physics, more than any other science, comes from its theoretical foundations. These have led to the unification of electricity, magnetism and optics, and the development of quantum theory, and through these the technological revolution that has shaped the world in which we live. It has led to the advances in telecommunications, material science and chemistry, and the development of such technologies as the transistor (and microchip) and almost everything we experience.

Motivated by a desire to reflect and take advantage of Loughborough’s research strengths in quantum physics, condensed matter, statistical physics and the physics of materials, the core Physics course has recently been revised from the ground up and structured to provide what we believe will be an exciting and academically outstanding course.

Physics with a Foundation Year

Physics with a Foundation Year is primarily for candidates who, for some reason, have not had the opportunity to study the pre-requisite subjects needed for first year entry.

Successful completion of the one-year foundation course allows to progress on to the first year of the core part of the degree course.

For more information and further details on typical offers and course content, visit: www.lboro.ac.uk/ug2019/foundation

OpenPlus (in partnership with the Open University)

Loughborough University, in partnership with the Open University, offers a flexible route to a degree in physics, for those without the traditional typical offers.

For more information, visit our website: www.lboro.ac.uk/undergraduate/courses/openplus

*DIS: Diploma in Industrial/International Studies
As a department we have a strong tradition in working with industry. The partnerships we build with external organisations strengthen the relevance of our teaching and our research.

In addition, we strive to equip our students with transferable skills like problem-solving, communication, team-working, and project work, alongside their education in physics – making them highly-employable graduates.

The opportunity to take an employability-enhancing ‘sandwich’ year of industrial training is available on all our BSc and MPhys programmes.

Outstanding placement opportunities
The graduate job market is hugely competitive, so having first-hand practical work experience can really help you stand out from the crowd. This is why we offer students on our undergraduate degrees in physics the option to spend a year in industry – applying knowledge to real-world problems in a role with real responsibilities.

Learning through practical experience is exceptionally valuable, and in many instances, has led to firm job offers from the placement employer.

Here are just a few of the exciting organisations at which our placement students have spent their sandwich year:
- CERN
- DSTL
- IBM
- L’Oreal
- Martin-Baker Aircraft Company Ltd
- Rolls Royce
- Siemens AG
- UBS

Excellent career prospects
Of all the disciplines, it has been said that a physics degree can lead to the broadest range of career opportunities. As a physicist you will be highly numerate, logical, analytical and a creative problem solver, skills valued by employers in all sectors, including commerce.

Here are some of the rewarding careers our graduates have gone on to pursue in recent years:
- Graduate Research Scientist, BAE Systems
- IT Professional, Deutsche Bank
- Product Developer, Dyson
- Graduate Engineer, E.ON
- Programme Manager, Lockheed Martin
- Civil Engineer, Pick Everard
- Weapons Graduate, QinetiQ
- Business Analyst, Triumph Motorcycles
- Tyre Science Analyst, Williams Formula 1

“There is lots of support to really push the boundaries as a student; I have had the chance to write part of a research paper which will hopefully be published in the European Journal of Physics.”

— Aanchel
BSc Physics and Mathematics

---

www.lboro.ac.uk/physics
Loughborough University is renowned for offering a life-changing student experience. In the Times Higher Education (THE) Student Experience Survey 2018, Loughborough came first in the country. Since the inception of the survey in 2006, Loughborough has topped the table eight times, and come top five no less than 11 times. Over the period of the survey Loughborough has enjoyed the best results in the country for student satisfaction.

We asked Department of Physics graduate Aanchel Bhabuta to sum up her own “Loughborough Experience”.

“When I first arrived at Loughborough, I was nervous and lacked confidence – people who know me now would be amazed to hear this! I was hesitant about getting involved in my department or extracurricular activities and I didn’t have the confidence to take the lead in anything. But I gradually became more outgoing – I think the openness of the department and the approachability of the Physics staff helped as it encouraged me to get join in. From there, I started to get more involved in societies and that sort of thing. This included working as a student helper for my department’s UCAS Visit Days when I met prospective students and their families – I even gave a short presentation about my placement year!

Now I’m a very confident and outgoing person and I’m definitely not afraid to take on new challenges.

One of my favourite things about the Physics department was the open door policy, which really helped support my studies. It was wonderful being able to approach a lecturer whenever I was stuck, whether I was half-way through some coursework or just before an exam. It also helped shape a friendly physics community where you could just go and talk about physics for fun (it can be you know!), like we did during the ‘quantum pub sessions’. I urge anyone coming to Loughborough to make the most of the opportunities available. It’s easy to stay in your comfort zone, but it’s definitely worth making the effort to get out and about – get to know your lecturers, join societies and be sociable. That way, you’ll maximise your time at uni and enjoy it a lot more.”

Aanchel Bhabuta graduated in 2015 with First Class Honours Master’s Degree in Physics and Mathematics. She now works as a chartered accountant.

The Loughborough Experience

Loughborough University is based on a superb 440 acre campus – the largest single-site green campus in the UK. Boasting pleasant open spaces, gardens and sports areas, our campus is equipped for every aspect of student life, with high quality accommodation, shops, health services, student support centres and our award-winning Students’ Union. You will join a vibrant campus community of over 20,000 students and staff from over 100 countries.

A unique sporting experience
As a Loughborough student you can take advantage of the two state-of-the-art gyms on campus, represent your Hall of Residence in over 30 sports, join any of our sporting societies or simply enjoy recreational sport and leisure activities.

Our dazzling array of sports facilities include a 50m swimming pool, five recreational parks, seven fitness studios and five full-sized floodlit synthetic pitches for ball sports.

Find out more: loughboroughsport.com

More than sport
In your spare time, there is something for everyone. You can join in with our Rag charity fundraising, community Action volunteering, the Media Centre, music and arts activities, and over 100 different clubs and societies.

For more information go to: www.lboro.ac.uk/about/students-union/

Loughborough life
A busy market town in the East Midlands, Loughborough boasts great travel links and is situated between the three nearby cities of Leicester, Nottingham and Derby. The town has a variety of entertainment on offer, including theatre, comedy, cinema and restaurants serving up global cuisine, alongside pubs, delis, bars and coffee shops.

For more information go to: lovemitted.co.uk

“From friends on the course to Halls of Residence, to Rag raids and Athletic Union clubs to choir buddies, you will find a wide array of social groups and activities to join, mingle with, and get to know Loughborough University. At Loughborough you get to meet people from all over the world, of different religions, ethnicity and culture, so make the most of it!”

Bernice
BSc Physics
This brochure was written several months in advance of the academic year to which it applies (2020). Every effort has been made to ensure that the information contained within is accurate at the time of publishing, but updates (for example to course content) are likely to occur due to the time between publication and the course start date. It is therefore important to visit our online prospectus at www.lboro.ac.uk/study before applying to check for any updates, as this will be the most up-to-date repository of information.