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Welcome to the School of Biosciences

The School of Biosciences is one of the University’s most successful schools and is internationally recognised as a leading centre for teaching and research.

We provide a flexible range of courses (undergraduate and postgraduate) which explore the fundamental and applied science underlying issues as diverse as:

- global food security
- the environment and its protection
- the growth, development, health and reproduction of plants and animals
- the production and preservation of agricultural and food commodities
- food quality, health, nutrition and safety

This brochure focuses on the following courses:

- Biotechnology
- Microbiology
- Plant Science

We have separate brochures for our other courses in the areas of:

- Agricultural science (with specialisms in crop or livestock science) and agricultural business management
- Animal science and pre-veterinary science (one year university certificate)
- Environmental science and environmental biology
- Food science, nutrition and dietetics

More detailed course information can be found on the University’s undergraduate online prospectus www.nottingham.ac.uk/ugstudy/biosciences

All our courses (except BSc/MSci Environmental Science and BSc Environmental Biology) are primarily studied at the Sutton Bonington Campus (see page 31), with some modules taken at University Park Campus, and there is a free regular hopper bus service between campuses.

Find out more about Oliver’s experience at www.nottingham.ac.uk/ugvideos/oliverbyrne

Front cover image:
Oliver Byrne, BSc Biotechnology, is tagging fruit from experimental tomato plants to record the day when they begin to ripen.

Rice plants growing in a lab at Sutton Bonington Campus, which is home to the School of Biosciences.
Why study biosciences courses at Nottingham?

There has never been a more exciting time to study for a degree in biosciences – biosciences is the generic term for many areas of science which have an almost daily impact on our lives, from the air we breathe to the food we eat and the environment in which we live.

Whether you see yourself as a pioneer of the future, influencing the quality of life on a global scale, or want the assurance of a top-class degree, as a graduate of the School of Biosciences you are guaranteed the best possible start to your career.

Our credentials

• The school is ranked the no.1 research environment in the UK (for Agriculture, Veterinary and Food Science) in the 2014 REF (Research Excellence Framework). 97% of our work was judged to be of international quality.*

• Consistently ranked highly in The Times, The Guardian and The Complete University Guide’s university league tables for our courses and student satisfaction ratings

• Awarded a Queen’s Anniversary Prize for Higher and Further Education in 2012, for research on global food security. This is the most prestigious form of national recognition open to a UK academic institution.

• In the 2014 National Student Satisfaction survey, we scored an 87% satisfaction rate among our students

World-class teaching and research

We are one of the UK’s strongest teaching and research centres for fundamental and applied biological, agricultural, environmental and food sciences.

You will be taught by leading international specialists, the majority of whom are active researchers in the most rapidly developing areas of biosciences; many of our academic staff are also expert advisors to government institutions, industry, and other national and international bodies. You will benefit from our extensive links with companies and institutions working in the field of biosciences.

We have a very favourable student to staff ratio of approximately 11 students to each member of staff.

Facilities

As well as the excellent teaching standards, you will also benefit from state-of-the-art facilities – you can read more about the impressive range of facilities at Sutton Bonington Campus on page 17.

Study abroad and industry placement opportunities

Unlike many other bioscience departments in the UK, at Nottingham you will have the opportunity to study abroad for a semester or a year, or to spend a year working in industry as a paid employee.

This is a fantastic opportunity for not only academic but also personal development, where you can gain valuable experience putting your learning into practice and also enhance your employability prospects. For more information see pages 20 to 23.

* The Research Excellence Framework is an independent audit of research carried out in higher education institutions nationwide.
Degree courses

<table>
<thead>
<tr>
<th>Course title</th>
<th>UCAS code</th>
<th>Duration</th>
<th>A levels</th>
<th>IB</th>
<th>Places</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single honours</td>
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</tr>
<tr>
<td>BSc Biotechnology</td>
<td>J700</td>
<td>3 years</td>
<td>ABB-BBB*</td>
<td>32-30</td>
<td>20-30</td>
</tr>
<tr>
<td>BSc Microbiology</td>
<td>C501</td>
<td>3 years</td>
<td>AAB-ABB**</td>
<td>34-32</td>
<td>10-15</td>
</tr>
<tr>
<td>BSc Plant Science</td>
<td>C200</td>
<td>3 years</td>
<td>ABB-BBB*</td>
<td>32-30</td>
<td>10</td>
</tr>
</tbody>
</table>

* Including two science-based subjects (biology is required; other science subjects usually include chemistry, maths or physics, but can include geography and, exceptionally, psychology). General studies, critical thinking, citizenship studies and leisure studies are not accepted. We may also consider ABC depending on predicted grades in specific subjects.

** Including two science-based subjects (biology and chemistry are preferred but can include maths and geography). General studies, critical thinking, citizenship studies and leisure studies are not accepted.
By the end of the course
You will have a thorough knowledge of fundamental cell and molecular biology and its application to biotechnology, ensuring you are well-prepared for a career in industrial or academic research or in related commerce.

Through your research project, you will have developed specialist knowledge in an area of your choice, and transferable skills including data analysis and presentation, effective communication and independent study.

Study abroad
Students on this course can apply to study for part of their degree at the University’s Malaysia Campus (see page 20).

Core modules include:
- The Biosciences and Global Food Security
- Biochemistry – The Building Blocks of Life
- Genes and Cells 1
- Animal Biology
- Genes and Cells 2
- Microbial Physiology
- Plant Science
- Academic Development and Employability
- Foundation Science

Optional modules include:
- Microbes and You
- Introductory Physiology

Core modules include:
- Molecular Biology and the Dynamic Cell
- Molecular Pharming and Biotechnology
- Principles of Immunology
- Professional Skills for Bioscientists
- Molecular Techniques in Biosciences

Optional modules include:
- Reproductive Physiology
- Bacterial Biological Diversity
- Virology
- Analysis of Bacterial Gene Expression
- Microbial Biotechnology: Genes to Products
- Plant Physiology and Applied Crop Science
- Physiology of Excitable Tissues
- Endocrine Control Systems
- Principles of Animal Health and Disease
- Plant Pests and Disease
- Computer Modelling in Science: Introduction

Core module:
- Research Project

Optional modules include:
- Genetic Improvement of Crop Plants
- Field Crops
- Biotechnology in Animal Physiology
- Applied Bioethics 1: Animals, Biotechnology and Society
- Co-ordinated Physical Functions
- Reproduction and Fertility
- Systems Neurophysiology
- Epigenetics and Development
- Applied Bioethics 2: Sustainable Food Production, Biotechnology and the Environment
- Molecular Nutrition
- The Microflora of Foods
- Molecular Microbiology and Biotechnology
- Rapid Methods in Microbial Analysis
- Microbial Fermentation
- Virology and Cellular Microbiology
- Plants and the Light Environment
- Plant Cell Signalling
- Plant Microbe Interactions
- Molecular Plant Pathology
- Fundamental and Applied Aspects of Plant Genetic Manipulations
- Plants and the Soil Environment
- Plant Disease Control
- Sex, Flowers and Biotechnology
- Biomolecular Data and Networks
- Technology Entrepreneurship in Business

For more detailed module information please visit the individual course listings at www.nottingham.ac.uk/ugstudy
BSc Microbiology
Microbiology is a laboratory-based science studying the micro-organisms which affect human, animal and plant health.

Microbiologists are at the cutting edge of solving the microbial problems facing mankind. For example, genetically modified microbes are used to combat pests and disease in crops without the need for chemical sprays. Valuable products like insulin for diabetes and vaccines against diseases are made cheaply and efficiently by modified microbes. Microbiologists work in a huge variety of fields, including food, healthcare, chemicals and waste treatment.

Years one to three
A broad base of modules is studied in year one and core modules in year two include a significant proportion of laboratory-based work.

In year three you will undertake a year-long research project, spending at least three full days per week in the final semester undertaking your work. Examples of recent projects include:
- Synthetic biology to produce anti-cancer agents
- Antimicrobial resistance in farm isolated E. coli
- Bioethanol fermentation using immobilised microorganisms
- Immune response to Porcine Rotavirus infection
- Improving yeast performance in very high gravity fermentations
- New PCR identification method for Listeria monocytogenes
- Use of a bacteriophage-based detection assay to detect Mycobacteria

By the end of the course
You will have a broad understanding of fundamental microbiology and specialisation in the area you have chosen, which could be medical microbiology, virology, molecular biology, or food and environmental microbiology. You will have developed strong practical research skills and a number of transferable skills including the ability to collect and analyse data and communicate effectively.

You will be qualified to work with microbial pathogens – this means you can pursue a laboratory career immediately, for example in a hospital or pharmaceutical company.

Other career possibilities include biotechnology companies, regulatory and environmental agencies, the food industry or further study for a PhD.

## Typical modules for C501

<table>
<thead>
<tr>
<th>Year one</th>
<th>Year two</th>
<th>Year three</th>
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</thead>
<tbody>
<tr>
<td><strong>Core modules include:</strong></td>
<td><strong>Core modules include:</strong></td>
<td><strong>Core module:</strong></td>
</tr>
<tr>
<td>• The Biosciences and Global Food Security</td>
<td>• Bacterial Biological Diversity</td>
<td>• Research Project</td>
</tr>
<tr>
<td>• Biochemistry – The Building Blocks of Life</td>
<td>• Medical Microbiology</td>
<td><strong>Optional modules include:</strong></td>
</tr>
<tr>
<td>• Genes and Cells 1</td>
<td>• Microbial Biotechnology: Genes to Products</td>
<td>• Microbial Fermentation</td>
</tr>
<tr>
<td>• Global Environmental Processes</td>
<td>• Virology</td>
<td>• Molecular Microbiology and Biotechnology</td>
</tr>
<tr>
<td>• Genes and Cells 2</td>
<td>• Principles of Immunology</td>
<td>• Molecular Plant Pathology</td>
</tr>
<tr>
<td>• Microbes and You</td>
<td>• Analysis of Bacterial Gene Expression</td>
<td>• Plant Cell Signalling</td>
</tr>
<tr>
<td>• Microbial Physiology</td>
<td>• Professional Skills for Bioscientists</td>
<td>• Rapid Methods in Microbial Analysis</td>
</tr>
<tr>
<td>• Microorganisms and Disease</td>
<td>• Microbial Mechanism of Foodborne Disease</td>
<td>• The Microflora of Foods</td>
</tr>
<tr>
<td>• Academic Development and Employability</td>
<td>• <strong>Optional modules include:</strong></td>
<td>• Virology and Cellular Microbiology</td>
</tr>
<tr>
<td>• Foundation Science</td>
<td>• Bacterial Genes and Development</td>
<td><strong>For more detailed module information please visit the individual course listings at <a href="http://www.nottingham.ac.uk/ugstudy">www.nottingham.ac.uk/ugstudy</a></strong></td>
</tr>
<tr>
<td>Optional modules may not be available in year one.</td>
<td><strong>Optional modules include:</strong></td>
<td><strong>Optional modules include:</strong></td>
</tr>
<tr>
<td></td>
<td>• Molecular Biology and the Dynamic Cell</td>
<td>• Computer Modelling in Science: Introduction</td>
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</tbody>
</table>
BSc Plant Science
All the food we eat is ultimately derived from plants. Population increases and environmental change are putting pressure on humanity to improve plant productivity. This must be underpinned with a detailed knowledge of plant sciences.

Our plant science course explores, through investigation and experimentation, how plants grow, develop, reproduce, evolve, fight off pests and diseases, and interact with and respond to their environment.

Nottingham's international reputation for the scope and quality of its plant science research enables us to teach at the cutting edge of knowledge and technology. The course covers many exciting aspects of modern plant science, including cell and molecular biology, genetic engineering, plant-pathogen interactions, environmental physiology, and ecology. The course also includes the application of plant science in the agricultural, horticultural, biotechnology and food industries.

Years one to three
After the fundamental core modules studied in year one, years two and three have a range of modules addressing many and varied aspects of plant sciences. In year three you will undertake a research project in plant science which may be either laboratory or field-based.

Study abroad
Students on this course can apply to study for part of their degree at the University’s Malaysia Campus (see page 19).

The research project encourages critical thinking and involves independent study and teamwork, a literature survey, and data handling, analysis and interpretation. Examples of recent projects include:
- General awareness and attitudes towards GM foods
- Nuclear and Plastid DNA evolution
- Use of PCR to monitor transposons in petunia
- Enzymes involved in taxol biosynthesis in transgenic plants
- Agrobacterium-mediated transformation of chickory
- Use of a fern for the phyto remediation of soil contaminated with arsenic
- Use of UV-C radiation to inhibit post-harvest fungal pathogens of fruit
- DNA-based detection of plant pathogens

By the end of the course
You will have a broad scientific background in many aspects of plant science and be well placed to find rewarding jobs in the crop production, plant biotechnology and food industries.

Typical modules for C200

<table>
<thead>
<tr>
<th>Year one</th>
<th>Year two</th>
<th>Year three</th>
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</thead>
<tbody>
<tr>
<td><strong>Core modules include:</strong></td>
<td><strong>Core modules include:</strong></td>
<td><strong>Core module:</strong></td>
</tr>
<tr>
<td>• The Biosciences and Global Food Security</td>
<td>• Plant Physiology and Applied Crop Science</td>
<td>• Research Project</td>
</tr>
<tr>
<td>• Biochemistry – The Building Blocks of Life</td>
<td>• Professional Skills for Bioscientists</td>
<td><strong>Optional modules include:</strong></td>
</tr>
<tr>
<td>• Genes and Cells 1</td>
<td>• Pathway 1:</td>
<td>• Biomolecular Data and Networks</td>
</tr>
<tr>
<td>• The Ecology of Natural and Managed Ecosystems</td>
<td>• Soil Science</td>
<td>• Field Cereals</td>
</tr>
<tr>
<td>• Genes and Cells 2</td>
<td>• Crop Management Challenge</td>
<td>• Fundamental and Applied Aspects of Plant Genetic Manipulation</td>
</tr>
<tr>
<td>• Plant Science Research Tutorials</td>
<td>• Plant Pests and Diseases</td>
<td>• Genetic Improvement of Crop Plants</td>
</tr>
<tr>
<td>• Grassland Management</td>
<td><strong>Pathway 1:</strong></td>
<td>• Introduction to Genomics Technologies</td>
</tr>
<tr>
<td>• Plant Science</td>
<td>• Soil Science</td>
<td>• Molecular Plant Pathology</td>
</tr>
<tr>
<td>• Academic Development and Employability</td>
<td>• Crop Management Challenge</td>
<td>• Plant Cell Signalling</td>
</tr>
<tr>
<td>• Foundation Science</td>
<td>• Plant Pests and Diseases</td>
<td>• Plant Disease Control</td>
</tr>
</tbody>
</table>

There are no optional modules in year one.

Optional modules include:
- Research and Professional Skills
- Computer Modelling in Science: Introduction
- Economic Analysis for Agricultural and Environmental Sciences
- Soil Science
- Ecosystem Processes
- Biological Photography and Imaging 1
- Plant Pests and Diseases
- Sex, Flowers and Biotechnology
- Soil and Water Pollution and Reclamation
- Current Issues in Crop Science

For more detailed module information please visit the individual course listings at www.nottingham.ac.uk/ugstudy
How will I study?

We want you to have the best possible learning experience, whatever your chosen course of study. At the School of Biosciences you’ll experience an integrated range of teaching and learning styles, from traditional lectures, practicals, small-group discussions and tutorials to contemporary multimedia and internet systems.

Modules

Modules are self-contained units of study that usually run for one semester; but some are year-long. All our undergraduate programmes are modular with assessment at the end of each semester. Although some modules are core, you can choose from a range of other optional modules. Depending on your timetable you may also be able to take modules from other schools across the University.

In the first year you will take a selection of modules, providing you with the basic foundations to underpin your degree. As you progress there is more flexibility and the opportunity to tailor your degree to suit your interests. This ensures that you leave The University of Nottingham with a solid scientific background, commercial awareness and transferable professional skills – vital attributes that are highly valued by graduate recruiters. You will have the opportunity to change courses within the first year, subject to approval.

Your research project

One of the strengths of all our degrees is the final year research project module. This allows you to work on your chosen area, supervised by research scientists, and provides the opportunity for you to demonstrate your abilities to future employers. It involves independent study, a literature survey and data handling, analysis and interpretation. The project also develops significant transferable skills, including critical thinking.

The school maintains close contacts both with industry and research institutions. Some of our courses feature site visits and field trips. Presentations from guest speakers strengthen our links with both the commercial and research worlds.

Your personal tutor

All students at the School of Biosciences have a personal tutor who is a member of the academic staff and will take a close interest in your academic progress and general well-being. University is a time of great personal development; sensitive guidance and encouragement from your tutor can help you make the most of your time here. You will be able to talk to your tutor (in confidence) about academic and other, more general concerns; they can be a valuable source of information, sympathy and common sense.

Library and computing services

At Nottingham, you will benefit from access to an extensive collection of printed and online library resources. In addition, you will have both on- and off-campus access to a very wide range of databases, ejournals and ebooks, to assist your learning wherever you are working.

At Sutton Bonington, the James Cameron-Gifford Library is one of the best of its kind in the country, providing access to a wide range of books, periodicals and other resources supporting your chosen degree course.

Key Information Sets (KIS)

KIS are comparable sets of information about full or part-time undergraduate courses and are designed to meet the information needs of prospective students. All KIS data is published on the Unistats website: www.unistats.co.uk

For Nottingham’s KIS data, please see www.nottingham.ac.uk/ugstudy
Facilities
As a highly successful, research-led school we have excellent laboratory and field facilities, including:

• Specialist laboratories – for biochemistry, molecular and environmental sciences, flavour research and food structure.

• Metabolism laboratories – for nutritional studies with farm animals.

• Plant and animal tissue culture units – facilities for gene cloning, sequencing and the generation and evaluation of transgenic plants.

• The Arabidopsis Stock Centre – one of two international centres housing over half a million genetic plant stocks.

• An extensive glasshouse complex – including the Future Crops Research Unit.

• A state-of-the-art building for research in food chemistry, food physics and microbiology – including a containment laboratory for working with genetically engineered micro-organisms.

• An animal science teaching laboratory – complete with the most modern equipment and an extensive suite of teaching and research laboratories in animal sciences covering molecular, cellular and tissue studies.

• A purpose-designed Plant Sciences Building – offering superb teaching and research facilities.

• A campus-based University Farm and Dairy Centre – we have a 450 hectare mixed farm, with arable crops, 200 dairy cows (robotically milked) a sheep flock, environmental stewardship land and new and established woodland. The farm is commercially run, with facilities for research and teaching, including a Farm Demonstration Centre; farm staff contribute to the teaching on our degree programmes.

• The Bioenergy and Brewing Building – has state-of-the-art facilities for research and teaching in brewing science, food processing (pilot plant) and bioenergy production. The food processing facility includes bakery equipment, canning facilities and a taste-test room.

• The Learning Resource Centre – up-to-date, 24-hour IT facilities, including two resource areas with workstations and full audiovisual projection facilities, video and laptop links.
How will I be assessed?

Assessment methods
Modules are assessed by a combination of examinations, both written essays and multiple-choice questionnaires, and coursework.

The latter comprises a range of exercises, including reports based on laboratory work, posters, oral presentations and written essays and articles. In all programmes, 25-40% of assessment is through coursework.

Credits
Your BSc honours degree course will be made up of 360 credits – 120 each year. You will normally take 60 credits each semester, made up of 10 and 20 credit modules.

A 10-credit module accounts for approximately 100 hours of study, with typically 20-30 contact hours spent in lectures or laboratory studies and the remainder for private study in your own time.

The teaching year
The teaching year is divided into two semesters. The first semester lasts for 14 weeks, with 12 weeks for teaching and revision and two weeks for assessment.

The second semester follows the same pattern, but there is an additional two weeks at the end to complete the assessment process and to enable returning students to discuss their results with tutors and begin to plan the next session’s work.

Although the teaching year is divided into two semesters for organisational purposes, this is fitted into the traditional pattern of three terms: one before Christmas; one between Christmas and Easter; and one after Easter.

Your final degree classification
Both your second and third year results together count for 100% of your final, overall grade. The first year is a qualifying year, which means you must pass this year to progress to the second year, but your mark will not contribute to your degree classification.

“Biotechnology is a degree which evolves to my interests, allowing me to choose a variety of optional modules.”
Lawrence Bramham
BSc Biotechnology
Study abroad

Certificate in European Studies (Biosciences)
Our BSc degree courses offer the opportunity to follow your chosen degree at one of our partner institutions in France, Germany or Spain for one extra academic year, taken after the second year.

Prior to placement, you will undertake a special European module (including language study) to improve your knowledge of the scientific and cultural aspects of your chosen country. Placements are arranged via the Erasmus European Exchange Programme. Our partner institutions are:

France
• Angers: Ecole Supérieure d’Agriculture d’Angers
• Lille: Université des Sciences et Technologies de Lille; Institut Supérieur d’Agriculture de Lille (ISA)
• Lyon: Institut Supérieur d’Agriculture Rhone-Alpes
• Paris: AgroParisTech (Institut des sciences du vivant et de l’environnement)

Germany
• Göttingen: Georg-August-Universität Göttingen

Spain
• Valencia: Universidad Politécnica de Valencia

The academic year in most European countries finishes in late May/early June so you can remain in your host country working or on holiday before you return to Nottingham. This stay aids further language development and allows you to make friends and experience life in another country.

Entry requirements
To be eligible, you must have a minimum of grade B at GCSE or AS level (or equivalent) French, German or Spanish (as appropriate to the host country, and which is not your home language).

How to apply
You can apply to transfer to this four year route during the first semester of your course (subject to meeting language requirements).

Tuition fees
All UK students who spend a full academic year abroad on the Erasmus programme pay reduced tuition fees to The University of Nottingham for the study abroad period.

Assessment
The marks you are awarded do count towards your European Certificate classification, but do not count towards your BSc classification.

Malaysia Campus
Students on the BSc Biotechnology and BSc Plant Science courses may have the opportunity to study for one semester or full academic year at our Malaysia Campus as part of their three-year degree programme. All teaching at our Malaysia Campus is in English and the modules and exams are very similar to those in Nottingham. Students from the UK campuses pay a reduced tuition fee during their time abroad and living costs in Malaysia are lower than in the UK.

Universitas 21
Nottingham is a founder member of Universitas 21 which is a global alliance of key universities. You will be able to apply to spend one semester (the first of your second year) studying in one of our partner institutions (including Australia, China, Korea, Mexico, North America, New Zealand, Singapore). Competition for these placements is high but the rewards are considerable.

Find out more about study abroad opportunities at
www.nottingham.ac.uk/currentstudents/study-abroad
Industry placements

Many of our students take advantage of an optional industry placement between years two and three of their degree. This year-long, paid placement allows students to develop a range of skills and enhance their employment prospects. The school’s Placement Manager can help you secure a placement.

The school has excellent links with a wide range of businesses and research institutes and recent students have enjoyed placements at companies and research centres including Cadbury, Givaudan, 2 Sisters, Campden BRI, Chester Zoo, Dr Oetker, GlaxoSmithKline, Kellogg’s, McDonald’s, Marks and Spencer, Mars, Mondelez, Nestle, PepsiCo, Philips Healthcare, Sainsbury’s, Tesco and Unilever. Placement students become employees of their chosen organisation and are paid a salary for the work they undertake.

Students undertaking an industry placement year will have their degree certificate endorsed with ‘Industrial Placement Award’ in recognition of this year.

Divya Malik (BSc Biotechnology) completed her placement at Campden BRI, a company which carries out research for the food and drinks industry worldwide:

“I worked as a lab technician in the Microbiology Department. They conduct research into the growth and survival of both pathogens and spoilage organisms, which are damaging to food products and in some cases lead to food poisoning. I’ve learned numerous technical skills from working in a lab full-time – I am now fully competent when it comes to most microbiological techniques as well as working with most of the machines used in the lab. I also got to work with numerous organisms including Salmonella, E.coli, and Listeria.

Being surrounded by researchers during my year out and having the opportunity to ask them about their experiences has motivated me to opt for a PhD as my future career path, probably in molecular genetics.”

Find out more about the experiences of some of our industry placement students at www.nottingham.ac.uk/biosciences/undergraduate/industryplacements
Career and employment prospects

The University of Nottingham is consistently named as one of the most targeted universities by Britain's leading graduate employers.*

Graduate career destinations
Our degree courses offer a thorough preparation for a wide range of careers. Many graduates take on roles in management, sales, marketing, finance and teaching, while others take up research posts in industrial and government organisations and universities in the UK and overseas. Some of the careers pursued by recent graduates are shown below.

Biotechnology
• Medical laboratory science
• Computer science
• Research and Development biotechnology laboratories, in both industry and research institutes
• Higher degrees (PhD) at UK universities and government research institutes (for example, Rothamsted Research and John Innes Centre)
• PGCEs (teacher training)

Microbiology
• Research microbiology in research institutes and universities
• Careers in the pharmaceutical and food industries
• Healthcare and medicine research and development
• Agricultural and environmental disciplines
• Biotechnology research
• Advisory and management roles in government agencies such as Defra, the Food Standards Agency and the Health Protection Agency
• Scientific writing and communication

Plant Science
• Plant propagators and tissue culturists
• Horticulturists at Kew Gardens, other botanic gardens and in industry
• Research scientists in the plant science industry and institutes
• Plant quarantine/quality inspectors
• Plant breeders
• Journalists
• Higher degrees (PhD) at UK universities and government research institutes (for example, Rothamsted Research and John Innes Centre)

Average starting salary
In 2014, 91% of first-degree graduates in the School of Biosciences who were available for employment had secured work or further study within six months of graduation. The average starting salary was £20,300 with the highest being £28,000.*

Further study opportunities
Many of our graduates choose to continue their studies and undertake further research to MSc, MRes, MPhil or PhD level at The University of Nottingham or elsewhere. Opportunities for further study within the school include taught postgraduate courses in a wide range of specialist subject areas.

* The Graduate Market in 2013, 2014 and 2015, High Fliers Research.
** Known destinations of full-time home and EU graduates, 2013/14.

See our website for profiles of some of our recent graduates: www.nottingham.ac.uk/biosciences/undergraduate/careers

Careers and Employability Service
Our Careers and Employability Service, which is based on University Park Campus, offers an extensive range of careers-oriented services, including CV-writing sessions, interview advice, presentations by major employers and general career advice.

As a University of Nottingham graduate, you will receive lifelong support from the service. This means that you can ask a careers adviser to look over your job application by email or Skype, or in person, and you can also access a database of graduate vacancies. For more information see www.nottingham.ac.uk/careers

The Nottingham Advantage Award
The University's Advantage Award is a programme of activities developed to recognise and reward extracurricular responsibilities. It allows you to gain recognition for participating in a wide range of activities accredited by the University and delivered by top graduate employers, professional services and members of staff of the University. It also shows employers that you have gone above and beyond your degree and gained valuable transferable skills.

For further information, please visit www.nottingham.ac.uk/advantage
“I’m going to work for Marks and Spencer. I’m doing food microbiology, so I’ll be going to suppliers and factories and making sure all their food is safe.”

Jennifer Spencer/BSc Microbiology with an Industrial Placement

Find out more about Jennifer’s experience at www.nottingham.ac.uk/ugvideos/jenniferspencer

Jennifer is preparing samples for phenotypic microarray analysis.
Your student experience

You’ve read lots about the degree programme you’re interested in, now it’s time to explore life outside the lecture theatre. There’s so much for you to get involved in and explore at the University and around the city. We are proud to be one of the leading universities for student experience in the UK*, which will ensure that you have a university experience you’ll never forget.

Your University of Nottingham – at home and around the world
We are proud of our stunning campuses and are continually investing in our grounds, buildings and amenities to ensure that you only have the best surroundings in which to live and study. Our main UK campuses have a mix of state-of-the-art facilities, including sports centres, places to eat and excellent learning facilities on every campus. We’ve made getting from campus to campus as easy as possible and students can benefit from our free inter-campus Hopper Bus, so you’re never far away from the striking architecture and innovative technology of Jubilee Campus, the rolling parkland and period buildings at University Park, or the impressive science facilities of Sutton Bonington.

The University of Nottingham is Britain’s global university with campuses in the UK, China and Malaysia. We also have links with more than 300 universities in over 40 countries, adding a truly global flavour to your degree and giving you the chance to explore the world. Find out more: www.nottingham.ac.uk/about/campuses

Your support network
Throughout your university journey there will be numerous people on hand to support you, including tutors and dedicated staff who will be able to advise you on various aspects of life as a student. We have Student Services Centres on all three of our UK campuses, which provide a range of support, information and specialist services to enhance your student experience. This support includes:

- Academic Support – can provide practical advice on areas of academic study; the service also provides specialist academic support for students with dyslexia, dyspraxia and other specific learning difficulties.
- Disability Support – coordinates support and access arrangements for students with a disability or long-term medical condition.
- Financial Support – provides information on the sources of finance available from government agencies and the University itself, and gives advice about financial matters.
- Student Services – also advise on issues ranging from childcare, counselling and health to international student support, chaplaincy and faith support, as well as offering advice on paying your tuition and accommodation fees.

Whatever you may need support with, they will either be able to help or point you in the direction of someone who can. Find out more: www.nottingham.ac.uk/studentservices

Your new home from home
At Nottingham we offer a range of different accommodation options, rooms are available as single or shared, en suite or shared bathroom, all the way through to studio flats, and vary from self-catered to fully catered (19 meals per week).

Most new students at Sutton Bonington live in Bonington Hall (the generic name for all accommodation at Sutton Bonington which is spread across the campus). You will have your own study bedroom in a shared flat with a fully fitted kitchen/diner. There are several different room types to choose from.

We also offer a guarantee of University accommodation for one year to all new full-time undergraduate students, subject to the following conditions: you firmly accept your course place at Nottingham, accept your offer of accommodation by the deadline given in your offer letter, and have an unconditional status no later than 31 August in the year you intend to begin your studies. If you are a new, full-time undergraduate student who is classified as international for fee purposes, this guarantee applies for three years**.

For more information, including a breakdown of pricing, please visit the website www.nottingham.ac.uk/accommodation

Getting involved in your Students’ Union
As soon as you start at The University of Nottingham, you are automatically a member of the Students’ Union, considered one of the best in the country. You can choose to get involved with over 200 student-run societies, covering all interests and abilities, more than 70 sports clubs, as well as local and national volunteering projects.

The Sutton Bonington Guild is part of the Students’ Union and represents the students at Sutton Bonington. The Guild’s elected student officers are active in arranging a wide range of welfare services, clubs and societies and social events on campus. Find out more: www.su.nottingham.ac.uk/sb/about

Exploring your new surroundings
Nottingham city centre has plenty to offer, whatever you like to get up to in your spare time. Also a bus ride away are Leicester, Loughborough and Derby with their own shops, bars, restaurants and cultural and sporting offerings. Find out more: www.nottingham.ac.uk/nottinghamlife

Download our city guide: www.nottingham.ac.uk/go/cityguide

Sports
We offer sport at all levels and an excellent all-inclusive student membership offer, so whether you enjoy sport as a hobby or are an elite athlete we will have just what you need. We have over 70 sports clubs, which means we have the 2nd highest number of sports clubs of any UK university. If you’re not interested in joining a team but want to stay fit, we have sports centres on all of our main UK campuses. Find out more: www.nottingham.ac.uk/sport

** Providing you submit your returns’ application in line with the requirements of the accommodation providers.
The School of Biosciences is based at Sutton Bonington Campus, situated to the south of Nottingham. Most of our courses are located here with some modules taken at University Park Campus, although the Environmental Science degrees are taught at University Park, with some modules offered at the University’s other campuses.

Sutton Bonington Campus has its own accommodation, sports centre and state-of-the-art teaching and research facilities. Newly opened is The Barn, a brand new student amenities centre with dining hall, social amenities and a range of support facilities. The campus is also home to the School of Veterinary Medicine and Science and there are around 2,000 students studying on campus.

Travel facts
Sutton Bonington is a 25-minute bus or car journey from University Park Campus in Nottingham. There is a free daily and evening bus service providing a link between campuses and at weekends with Nottingham city centre.

Sutton Bonington Campus is also close to Loughborough (6 miles), Derby (10 miles) and Leicester (15 miles). There are excellent road, rail and air links to the rest of the UK and overseas:
• Two miles from junction 24 of the M1 motorway
• Five miles from East Midlands airport
• East Midlands Parkway railway station (three miles); Loughborough railway station (six miles), both with direct links to London

Tour the campus with one of our students: www.nottingham.ac.uk/about/campuses

Sutton Bonington Campus has plenty of green spaces, perfect for outdoor study and socialising.
We are looking for students who have the ability and motivation to benefit from our courses, and who will make a valued contribution to the department and the University. Candidates for full-time admission are considered on the basis of their Universities and Colleges Admissions Service (UCAS) form. For more information on how to make your application stand out, have a look at our online prospectus: www.nottingham.ac.uk/ugstudy/applying

Application process
All applications for an undergraduate place to study at The University of Nottingham (including applications by overseas students) must be made through UCAS. Applications should be made online at www.ucas.com. Candidates will be notified of decisions through UCAS Track at track.ucas.com

Your personal statement
This is the section of your UCAS form that tells us most about you, and you should make the best use of it. Be as specific and detailed as you can – we would like to see that you are a student who can work hard, be self-motivating and make the best possible use of the opportunities this course might have to offer you.

Required subjects
The general requirements for entry onto our undergraduate courses are three A levels including two science-based subjects (please see page 6 for specific subjects required).

Like many others, The University of Nottingham does not make offers through the tariff system within the Curriculum 2000 initiative.

Those degrees may also be taken with the Certificate in European Studies or study abroad option (see page 20) or an industry placement (see page 23).

Information on current entry requirements can be found on the University’s online prospectus: www.nottingham.ac.uk/ugstudy/biosciences

Alternative qualifications
This brochure specifies our A level entry requirements, but we accept a much broader range of qualifications. These include:

• European Baccalaureate
• International Baccalaureate
• Irish Leaving Certificate
• Scottish Advanced Highers
• Welsh Baccalaureate
• Access and BTEC courses

This list is not exhaustive; we will consider applicants with other qualifications on an individual basis. The entry requirements for alternative qualifications can be quite specific; for example you may need to take certain modules and achieve a specified grade in those modules. Please contact us to discuss the transferability of your qualification.

For tips and advice at every step of your application journey, visit our undergraduate applicants' area: www.nottingham.ac.uk/ugapplicants
Flexible admissions policy
In recognition of our applicants’ varied experience and educational pathways, we employ a flexible admissions policy. If we judge that your situation has adversely affected your achievement, then we will consider this when assessing your academic potential. If you wish to mention information about your experiences in your personal statement, then you should ask the teacher or tutor writing your reference to confirm what you have written. We may ask for further evidence and may consider a range of factors. For more information, please see www.nottingham.ac.uk/go/admissionspolicies

Mature applicants
We encourage applications from mature students (which means all those aged 21 or over when the course begins). You should apply in the normal way through UCAS (unless you want to study part-time, in which case you should apply directly to the department). While we accept a range of qualifications, you should check our specific requirements on UCAS course entry profiles. If in doubt, please contact the admissions tutor, who will be happy to answer any specific queries you have about applying as a mature student. More information for mature students can be found at: www.nottingham.ac.uk/mature

Part-time study
The courses covered in this brochure are offered part-time. Applications for part-time study should be made directly to the University.

International applicants
We welcome applications from international students and have students from many parts of the world studying with us at undergraduate and postgraduate level. All international candidates for undergraduate courses should apply through UCAS. The University’s International Office offers guidance and advice on matters such as visa and immigration regulations, working and living in the UK, entry requirements and preparing for coming to Nottingham – and arranges a Welcome Programme for new international students each September. If you would like to visit the University and are unable to attend an open day, the International Office will be happy to arrange an individual visit for you. For further information please visit www.nottingham.ac.uk/studywithus/international-applicants

Deferred entry
Applicants who wish to defer their entry by a year will not be at a disadvantage. Please tell us something about your plans for your gap year in your UCAS personal statement.

Equal opportunities policy
The University aims to create the conditions whereby students and staff are treated solely on the basis of their merits, abilities and potential, regardless of gender, race, colour, nationality, ethnic or national origin, age, socio-economic background, disability, religious or political beliefs, trade union membership, family circumstances, sexual orientation or other irrelevant distinction.

English language requirements
IELTS 6.0 (no less than 5.5 in any element)
For more information and a list of the alternative English language requirements we accept, please see www.nottingham.ac.uk/go/alternativerequirements

Preparing to study in English – academic English preparation and support
The University of Nottingham Centre for English Language Education (CELE) offers high quality academic English and study skills (preessional) programmes to prepare you to study your degree in English. Our programmes are designed to give international students excellent preparation for their academic studies and are taught by experienced, professional tutors.

CELE provides a range of programmes throughout the year, including five-week subject-specific courses (in some subjects) and a four-week course in September for students with unconditional offers, with a focus on academic study skills.

You can continue to benefit from academic English support with free classes and one-to-one consultations throughout your study (insessional programmes).

For more information about CELE, please visit www.nottingham.ac.uk/cele
Frequently asked questions

How much are the fees?
Like many universities in England, Nottingham charges full-time UK and EU students an annual tuition fee of £9,000. However, you will not have to pay your fees while studying – the government will lend eligible students the money, which you will start to pay back once you have left university and are earning at least £21,000.

For more information, please see www.nottingham.ac.uk/fees.

Fees for students from outside the EU vary from subject to subject. For more information, please see the ‘New international students’ section on www.nottingham.ac.uk/fees.

What bursaries are available?
Although bursary figures for 2016/17 are yet to be finalised, the University will continue to offer a generous package of bursary support to students from lower income households. These are in addition to any support you may receive from the government. For more information please see www.nottingham.ac.uk/financialsupport or take a look at the funding tab on the relevant course entry in our online prospectus: www.nottingham.ac.uk/ugstudy.

If you are an international applicant (outside of the EU), please see the ‘New international students’ section on www.nottingham.ac.uk/fees.

What support is available for students with children?
There are a range of services provided to support students with children, including a University day nursery, a playscheme and playcentre day care. There is also a scheme to help students fund childcare. For more information, see www.nottingham.ac.uk/child-care.

What support do you offer for students with a disability or dyslexia?
We are committed to promoting access for students who have a disability, dyslexia or a long-term medical condition. Services provided by the University aim to enable students to fulfil the inherent requirements of the course as independently as possible.

The University’s Disability Statement, which lists services, facilities and opportunities available throughout the University can be viewed at www.nottingham.ac.uk/disability.

Visit our website for more frequently asked questions: www.nottingham.ac.uk/faqs.
Visiting and contacting us

Open days
If you’re considering applying to The University of Nottingham we recommend that you try to attend one of the University-wide open days, which are held in June and September each year. You can talk with members of academic staff, attend subject sessions and tour the campus with current students. Find out more on the website: www.nottingham.ac.uk/opendays

Mini open days
Mini open days are much smaller than the main open days but also offer opportunities to speak to current students and academics. Find out more www.nottingham.ac.uk/go/miniopendays or call +44 (0)115 951 5559.

Virtual open day
If you can’t attend one of our open days in person, or would like to explore our campuses before visiting, take a look at our virtual open day: www.nottingham.ac.uk/virtualnottingham

UCAS visit days
All candidates who receive an offer from the School of Biosciences are invited to attend a UCAS visit day, which is an opportunity for you to visit the school and to find out more about your chosen course. You will also be given a tour of the campus by current students.

Contact us
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Biotechnology/Plant Science
Dr Susannah Lydon
Admissions Tutor
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The University of Nottingham has made every effort to ensure that the information in this brochure was accurate when published. Please note, however, that the nature of the content means that it is subject to change from time to time, and you should therefore consider the information to be guiding rather than definitive. You should check the University’s website for any updates before you decide to accept a place on a course.

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Your passion can be your success. Study what you love.
The world needs scientists and engineers. But not just any scientists or engineers. It needs people who will transform their love of the subject into life-changing inventions and discoveries. If you have the enthusiasm, we have the lecturers to fire it.

Find out more: www.nottingham.ac.uk/studywhatyoulove