Bioscience with Entrepreneurship
Undergraduate Degree Scheme
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Welcome to **Lancaster**

Why study **Bioscience with Entrepreneurship**?

The Bioscience with Entrepreneurship degree programme combines world-leading teaching from the Faculty of Health and Medicine, Lancaster Environment Centre and the Department of Entrepreneurship, Strategy and Innovation in the Management School. This degree is aimed at students with an interest in a range of Bioscience topics but who are also looking to understand the challenges of entrepreneurship and innovation. No prior experience of business is required for entry to this degree scheme, just lots of enthusiasm. This degree provides a broad range of Bioscience and Entrepreneurship modules, so you can tailor this degree to suit your own interests and career aspirations. Around 50% of the contact time on our courses is used for practical and workshop activities.

Graduates from this degree scheme will be qualified for a range of career opportunities making use of their scientific knowledge, practical skills and a wealth of transferable and employability skills, attractive to a range of graduate employers. The Bioscience with Entrepreneurship degree provides an opportunity to not only become a leading Bioscientist, but to also have the knowledge necessary for a commercial environment.

The Division of Biomedical and Life Sciences, within the Faculty of Health and Medicine, has an established history of high quality research in the fundamental molecular and cellular aspects of human ageing and disease.

Lancaster Environment Centre leads the international research agenda in several important areas, including impacts of climate change on biodiversity and conservation to the development of sustainable crop production systems.

The Department of Entrepreneurship, Strategy and Innovation is at the forefront of entrepreneurship research, teaching and knowledge exchange. All contributing departments received the highest possible score of ‘Full Confidence’ in the latest University teaching assessment.

**What is entrepreneurship?**
Entrepreneurship is about being able to recognise opportunities that can create difference (whether for profit, social or individual benefit), making the most of available resources to take advantage of those opportunities, and being able to take actions necessary to capitalise on those opportunities. Being entrepreneurial is much more than starting a new business. An entrepreneurial mindset is essential within a corporate environment, as well as a way of thinking about new opportunities for your future career.

**What is the importance of Entrepreneurship within Bioscience?**
Bioscience is a fast-paced, innovative environment and increasingly organisations face challenges in taking new ideas to market. As such, businesses today not only require scientists who are at the cutting-edge of Bioscience, but also those who understand the challenges of commercialising new ideas and innovations, which is where skills in Entrepreneurship are essential.

**Quote from a current student.**
“It’s exactly the type of thing I was looking for when I started University but there was nothing of the kind available. Too bad it wasn’t available a few years ago!”

**Quote from an employer.**
“An understanding of business and talking the business language will set you apart from other scientists.” Founder and Executive Chairman (Head of Innovation), CME Medical, EY Northern Entrepreneur of the Year 2014 Business Products and Service Information from Confederation of British Industry (CBI).

Education and Skills Survey (2011) found that graduates’ lack of commercial awareness remains an issue for many employers.
Be Taught by the Best
Research Excellence in the Division of Biomedical & Life Sciences

The Division of Biomedical and Life Sciences (BLS) in the Faculty of Health and Medicine was ranked highly in the Allied Health Professions and Studies Unit of Assessment in the most recent Research Assessment Exercise. The Division’s established history of high quality research in biomedical science has been recently further boosted by significant investment including a number of new appointments. Due to our high level of research activity, our students benefit from research led teaching and exposure to up-to-date facilities and research expertise.

Academic staff members in BLS are responsible for the co-ordination of biomedical teaching and research activities at Lancaster University and all could contribute to your degree, depending on the modules you choose to take. Our research is grouped around the following core themes:

- **Cancer Biology and DNA Repair** - Research groups are investigating a number of different aspects of the molecular and cellular biology of cancer including: cellular effects of exposure to carcinogens and ultraviolet light, DNA repair mechanisms, cell cycle control, and the molecular events leading to leukaemia.

- **Ageing and Neurodegenerative Disease** - Progressive degeneration of the nervous system is a feature of a number of human diseases characterised by impaired movement or cognition. Researchers in the Division are studying the underlying processes that lead to brain dysfunction and degeneration in Alzheimer’s disease, Parkinson’s disease and ageing.

- **Microbiology and Parasitology** - The microbiological research activities of the Division are aimed at a better understanding of the cell biology of protozoan parasites and yeast. In addition to its application to medical parasitology our work also exploits microorganisms as models for understanding human cellular function. The Unit works in close collaboration with microbiologists in the Lancaster Environment Centre.

- **Cell Biology and Biochemistry** - The Division includes a number of research groups whose work is focused on applying biochemical and structural techniques to understanding cellular function at its fundamental level. Particular research interests include corneal transparency and dysfunction, proteoglycan structure and function, the biochemical and genetic characterisation of angiotensin converting enzyme (ACE), and mechanisms of ageing.
The Lancaster Environment Centre (LEC) is one of the largest collections of environmental researchers in Europe. Its mission is to address the world’s most important environmental and sustainability issues. LEC has a strong commitment to research excellence, including research with real with impact that links directly with end users. LEC’s research addresses challenges related to environmental change, biodiversity and ecosystem function, sustainable agriculture, and sustainable resource management.

Biology staff in LEC lead teaching and research activities in areas such as environmental change, biodiversity and ecosystem function, sustainable agriculture, and sustainable resource management. Staff from all of these areas could contribute to your degree, depending on the courses you opt to take.

This diverse suite of skills and knowledge make Lancaster a really exciting learning environment. LEC’s biology-related research activities are grouped around two core themes:

- **Plant and Crop Science** – We combine research in plant science, from the molecular to the crop scale, with other disciplines in both the natural and social sciences working closely with end users to address the ecological, economic and social challenges facing crop production in a rapidly changing global environment.

- **Ecology and Conservation** – We use molecular, behavioural and ecological techniques to understand how ecosystems function, how they respond to global change, and how they can be managed to enhance biodiversity and its associated services.
The Department of Entrepreneurship, Strategy and Innovation is within Lancaster’s world-leading Management School. Alongside teaching and research, the department has an established knowledge exchange team that has for over a decade worked with businesses around the UK providing a range of programmes and support for business growth and innovation. Both its teaching and support programmes are led by its world-leading research in entrepreneurship research that includes the following areas: opportunity identification, innovation, networks for entrepreneurship, business growth, entrepreneurial learning, and strategic entrepreneurship.

Entrepreneurship is not just about business start-up. Entrepreneurship, in its broadest sense, is about being equipped to identify new opportunities, knowing how to act on them, and making a difference. In order to do this successfully, being entrepreneurial often requires making the most of available resources to take advantage of new opportunities and taking action to bring those opportunities to fruition. An increasing number of employers are requiring graduates to not only be experts in their disciplines, but to also have an entrepreneurial mindset that provides a basis for business growth and innovation. Entrepreneurship is thus just as applicable to starting a business as it is within a range of corporate contexts. Biosciences is a fast-paced, innovative environment which demands leading edge scientists who understand the complexities and challenges of bringing new innovations to market.

Working within the Department for Entrepreneurship, Strategy and Innovation will provide an opportunity to understand the challenges facing businesses and individuals in commercialising new ideas, as well as having an opportunity to work on practical projects that will challenge your skills in identifying new opportunities and gathering resources to make them happen. You will also get a chance to think more about the challenges specific to Biosciences. In addition, the department has over forty Entrepreneurs in Residence who are actively involved in teaching and are on hand to provide advice and guidance in developing your entrepreneurial mindset.

Be Taught by the Best
Research Excellence in the Management School
Degree Programmes in the Division of Biomedical and Life Sciences

In addition to our Bioscience with Entrepreneurship degree we offer a range of biosciences degrees. For information on these other degree programmes please see the Biomedical Sciences, Biochemistry and Biological Sciences prospectuses.

- Biomedical Science: BSc Hons
- Biomedicine: BSc Hons/MSci
- Biomedicine BSc Hons/MSci Study Abroad
- Biochemistry: BSc Hons
- Biochemistry: BSc Hons Study Abroad
- Biochemistry with Biomedicine: BSc Hons
- Biochemistry with Genetics: BSc Hons
- Biological Sciences with Biomedicine: BSc Hons
- Biological Sciences BSc Hons/MSci
- Biological Sciences BSc Hons/MSci Study Abroad
- Biology: BSc Hons/MSci
- Biology with Psychology: BSc Hons
- Bioscience with Entrepreneurship: BSc Hons

Our 3-year BSc degree schemes provide you with a range of options. The schemes range from highly specialised degrees to flexible degrees with a choice of modules covering the whole spectrum of biology, from ecology and the conversation and management of biological resources, through to genetics and biochemistry. We also offer flexibility to move between degree programmes. The degrees are taught by staff from the Division of Biomedical and Life Sciences, the Lancaster Environment Centre, the Department of Chemistry, the Department of Psychology and the Management School in order to provide a broad range of subjects enabling students to choose or tailor the degree scheme to match their interests. There is something here for everyone!

The Degree Structure

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<tr>
<th>Core and optional modules</th>
<th>Core and optional modules</th>
<th>Independent project</th>
<th>Core and optional modules, and projects</th>
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<td>Study abroad options</td>
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<th>year one</th>
<th>year two</th>
<th>year three</th>
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Bioscience with Entrepreneurship
BSc Hons degree programme, UCAS Code: C1N2

The degree is taught jointly by staff from the Division of Biomedical and Life Sciences, Lancaster Environment Centre and the Department of Entrepreneurship, Strategy and Innovation. The first year Bioscience modules provide choice of a range of topics including Genetics, Aquatic Ecology, Protein Biochemistry, Biodiversity and Conservation, Anatomy and Developmental Biology. You will also study two compulsory Bioscience modules: ‘Skills in Biomedical and Life Sciences’ and ‘Experimental Design and Data Analysis’. During the first year, the introductory ‘Entrepreneurship: realities, concepts and myths’ will challenge your assumptions about entrepreneurship as well as providing an insight into the challenges of new ideas and innovations.

In second year there are many modules available for you to choose from for both Bioscience and Entrepreneurship disciplines, enabling you to choose themes to suit your interests. You will begin to specialise more in your chosen Bioscience disciplines, developing deeper knowledge and a wide range of practical skills which are studied alongside a compulsory module which looks at the challenges of entrepreneurship with the organisational context and within a global arena.

Quote from Professor David Hornby, External Examiner, Biomedical and Life Sciences.
“Enterprise and business awareness should be critical components of any HE course”

Bioscience with Entrepreneurship Research Projects

During your degree, you will undertake project work during the summer term or summer vacation of your second year, and complete this during the first term of your third year. There is a range of Bioscience and Entrepreneurship projects available. You may choose to take a Bioscience Laboratory project in our brand new laboratory facilities, where you will carry out your own research in Genetics, Cell Biology, Microbiology or Biochemistry. If you choose this option, you will also carry out an Entrepreneurship literature project, which would extend your knowledge of the links between Bioscience and Entrepreneurship; this project will be supervised by a member of staff from the Department of Entrepreneurship, Strategy and Innovation in the Management School. Alternatively, you may prefer to undertake a summer vacation internship, writing up your experiences and reflections informed by discussions with a supervisor from the world-leading Lancaster University Management School (please note that summer internships are limited and there is competitive entry for this project option).

There is a range of specialist third year Bioscience modules for you to choose from covering topics such as Cancer, Global Change Biology, Immunology, Medical Genetics, Tropical Diseases, Neurobiology, Environmental Plant Biology and Biology of Ageing. In the third year, Entrepreneurship module choice includes: Innovation, New Venture Planning and Entrepreneurial Learning, where you will have an opportunity to collaborate with our Entrepreneurs in Residence and find out more about the challenges they have faced.
## DEGREE STRUCTURE

### YEAR 1

**Compulsory modules**
- Entrepreneurship – Realities, Concepts and Myths.
- Skills in Biomedical and Life Sciences
- Experimental Design and Data Analysis

**Examples of choices**
- Molecules of Life
- Anatomy & Tissue Structure
- Evolutionary Biology
- Cell Structure & Function
- Impact of Microbes
- Zoology
- Genetics
- Infection & Immunity
- Biomedical Science in Practice
- Aquatic Ecology
- Biotechnology
- Hormones and Development
- Biomedicine & Society
- Global Change Biology
- Protein Biochemistry
- Human Physiology
- Biodiversity and Conservation
- Developmental Biology

### YEAR 2

**Compulsory modules**
- Corporate Entrepreneurship in a Global Context

**Examples of choices**
- Small Business and the Small and Medium Enterprise Sector.
- Franchising
- Biochemistry
- Cell Biology
- Evolution
- Populations to Ecosystems
- Biochemical Techniques
- Cell Biology Techniques
- Medical Microbiology
- Genetics

### YEAR 3

**Examples of choices**
- New Venture Planning
- Entrepreneurial Learning
- Franchising
- Innovation
- Family Businesses
- Social Contexts of Entrepreneurship
- Cell signalling
- Genetics
- Immunology
- Animal Behaviour
- Global Change Biology: Challenges & Solutions
- Cell Signalling, Transport & Disease
- Medical Genetics
- Tropical Diseases
- Neurobiology
- Frontiers in Ecology & Evolution
- Environmental Plant Biology
- Cell Cycle & Stem Cells
- Protein Biochemistry
- Ethics in Biomedicine
- Cancer
- Issues in Conservation Biology
- Ecophysiology of Host-Pest Interactions
- Biology of Ageing
- Molecular & Biochemical Parasitology
- Sustainable Agriculture

Environmental Physiology
- Principles of Biodiversity Conservation
- Data Collection & Analysis
- DNA Technology
- Microbiological Techniques
- Practical Physiology

**Project options**
- Bioscience Laboratory Project AND
- Entrepreneurship Literature Project
- OR
- Entrepreneurship Placement (competitive entry)
Our Bioscience with Entrepreneurship degree course will provide you with a wealth of relevant theory, factual information, practical skills and an understanding of business and innovation. In addition, the degree scheme is designed to provide you with a wealth of transferable and employability skills, preparing you for further study or a range of professional careers.

**Transferable and Employability Skills**

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<tr>
<th>Intellectual</th>
<th>Numerical</th>
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<tr>
<td>Scientific understanding</td>
<td>Data recording</td>
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<tr>
<td>Information collation and synthesis</td>
<td>Statistical analysis</td>
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<tr>
<td>Hypothesis generation and testing</td>
<td>Presentation of data</td>
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<td>Application of subject knowledge</td>
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<th>Practical</th>
<th>Interpersonal</th>
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<td>Laboratory competence</td>
<td>Group working</td>
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<td>Health and safety awareness</td>
<td>Appreciation of personal and collective goals and responsibilities</td>
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<td>Experimental design</td>
<td>Negotiation skills</td>
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<td>Use of Laboratory equipment</td>
<td>Networking</td>
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<th>Self-management and professional development</th>
<th>Communication and IT</th>
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<tr>
<td>Independent working</td>
<td>Spreadsheets, statistics software</td>
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<td>Enterprise and Creativity</td>
<td>Word processing</td>
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<td>Time management</td>
<td>Oral presentations</td>
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<tr>
<td>Organisational skills</td>
<td>Written scientific reporting</td>
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<tr>
<td>Project planning and management</td>
<td>Poster presentation</td>
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<tr>
<td>Self-reflection</td>
<td>Citation and referencing</td>
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“All university students should have access to enterprise and entrepreneurship.” Lord Young, Enterprise for All: The Relevance of Enterprise in Education (2014).

We recognise that you want a degree that, as well as ensuring your academic excellence, also enhances your employability. The Bioscience with Entrepreneurship degree will help you stand out from the crowd and be an excellent platform for further study, research based careers or employment within the Bioscience industry. Some graduates may wish to start their own business or explore new opportunities using their knowledge of entrepreneurship and the networks of entrepreneurs they develop during this degree.

“Universities should...ensure that students have the opportunity to develop enterprise skills” (Professor Sir Tim Wilson DL, ‘A review of Business-University Collaboration’, 2012).

Higher Education Academy

96% of Bioscience graduates do not run their own businesses following graduation, but may still utilise a range of entrepreneurial skills in an established Bioscience organisation.

Quote from Employer, CME Medical

“If your ambition is to innovate and create you will need to understand how to take your ideas to market and get on board people who may struggle to understand your idea. In my role I often meet brilliant scientists and engineers who struggle when it comes to commercialisation of their ideas. Stephen Thorpe, Founder and Executive Chairman (Head of Innovation), CME Medical (winner of EY Northern Entrepreneur of the Year 2014 (Business Products and Services category).

Work Experience

In collaboration with Sector Skills Councils, competitive internships are offered to our students in industries across the North-West and beyond such as the NHS, GlaxoSmithKline and AstraZeneca. Lancaster University Student Union runs ‘Involve’, a programme which provides you with the opportunity to get involved in your local community - students can gain experience working with local charities, primary and secondary schools, hospitals, and supporting older people to feel safe in their homes.

The Lancaster Award

At Lancaster we not only value your academic accomplishments, but also recognise the importance of those activities with which you engage outside your programme of study. The student experience is enhanced by including extra-curricular activities and, with more graduates than ever before and increasing competition for jobs upon leaving University, these are vital to your future prospects. We want to encourage you to make the very most of your University experience and to leave Lancaster as a well-rounded graduate. We have a wealth of opportunities to get involved in with initiatives such as work placements, volunteering, extracurricular courses, societies and sports. The Lancaster Award aims to encourage you to complete such activities, help you to pull them together in one place and then be recognised for your accomplishments. We want you to stand out from the crowd - the Lancaster Award will help you to do this.
Careers

Our graduate employment rates are higher than many of our competitors and the vast majority of our 2013 graduates were in full graduate level-employment or further study within 6 months of graduating. Many students go on to professional careers making use of their academic skills in research, business and public service. Others choose to continue their studies to MSc or PhD including on our own world-class postgraduate programmes.

Our compulsory tutorial programme addresses career development and employability issues and offers training in interpersonal skills, CV writing and presentation skills. In addition, colleagues from a wide range of industrial settings contribute their perspectives on employment issues and practices, ensuring that you’re as well informed and prepared as possible.

In addition to equipping students to enter research based careers, our Bioscience degrees also provide students with a very wide range of transferable skills which are valuable for professional careers related to many aspects of research, business and public service. Examples of employment undertaken by some of our recent Bioscience graduates include:

- Trainee clinical biochemist - Scientist training programme, NHS
- Microbiologist – Boots
- DNA Sequencing Scientist - Source Bioscience - Life Sciences Division
- Public Engagement Manager - University of Central Lancashire
- Biomedical Scientist – NHS
- National Accounts Sales Executive – Hewden
- Trainee clinical scientist- ACM Global central laboratory
- Raw materials officer- GlaxoSmithKline
- Administration and facilities Manager- Nobel Medicals Ltd
- Science Communications Officer - Clinical sciences centre, Medical Research Council
- Natural History Film Maker - Science Pictures Ltd
- Conservation Officer - Environment Agency
- Head of Biodiversity Nature - European Commission
- Assistant Warden - RSPB
- Medical Writer - Knowledgepoint360 Group
- Journal Promotions Manager - Blackwell Science Limited

At Lancaster, a great deal of emphasis is placed on developing employability skills throughout all our degree programmes. This is achieved by:

- Encouraging all of our students to enrol for the Lancaster Award. This formally recognises and rewards voluntary work, work experience and participation in careers training programmes offered by the Careers unit.
- Providing tutorials and workshops on careers planning and preparation as integral parts of each biology degree programme.
- Providing careers drop-in sessions with staff from the Careers unit every term, plus mentoring events to enable current students to receive practical advice from our former graduates.
- Ensuring students are kept fully informed of new employment opportunities and careers events held both on and off campus, via regular emailed careers bulletins.
Admissions Information

Typical requirements for entry to our degree programmes

**BSc (Hons) degrees**
- A-level grades **AAB**
- Scottish higher grades **ABBBB**
- International Baccalaureate **35 pts** with **16 pts** from best 3 HL subjects.

Please note: For all degree programmes, we require a minimum of 2 science subjects from the 3 A levels studied, plus GCSE passes in English at grade C and Mathematics at grade B.

Entry to our Bioscience with Entrepreneurship degree programme does not require any previous Business qualifications.

**Applications**
Applications for all of our undergraduate degree programmes must be made through the Universities and Colleges Admissions Service (UCAS), using the online service via: www.ucas.ac.uk

**Degree programme UCAS codes**
BSc Bioscience with Entrepreneurship (UCAS code: C1N2)

**Mature and Overseas Applicants**
We welcome applications from mature or overseas students or those offering relevant subjects such as Access Diplomas or other awards. Your application will be considered individually on its merits and in relation to the University’s guidance on equivalence to A levels.

**Widening Participation**
Lancaster University has a committed approach to widening participation and understands that some students face a number of barriers and obstacles when considering university. We know that for many students who come from a non-traditional university background, even thinking about applying to university is a big step. We want to ensure that future applicants to Lancaster are not held back by any barriers and that our student cohort reflects the diverse society that we live in.
Support for your studies

Personal supervision in departments and the collegiate system combine to provide students with the best possible opportunity to achieve their potential. Staff-student ratios are significantly better at Lancaster University than the national average and small group teaching is an important feature of our educational approach. The cost of University accommodation (and general living costs) at Lancaster is among the lowest in the country.

The Tutorial Programme

All students joining the Division of Biomedical and Life Sciences are assigned a member of academic staff who acts as their tutor throughout their time at Lancaster. You will have a one-to-one meeting with your tutor at least once a term to discuss your progress. In addition, during the first and second years, your tutor will also host small group tutorials to enable you to develop key transferable skills which will be required during your degree. Our friendly and approachable staff endeavour to make themselves as freely available as possible to students they are teaching or to their tutees.
Further Information about the University in general, accommodation or the city of Lancaster may be found in the University’s Undergraduate Prospectus. Paper copies are available via:

www.lancaster.ac.uk/prospectus

The Lancaster University website:

www.lancaster.ac.uk

Contacting the Admissions Staff:

For all degree programmes offered in this brochure please contact: The Undergraduate Admissions Coordinator.  
Tel: +44(0) 1524 593265  
E-mail: bioladmit@lancaster.ac.uk

Postal address:

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LA1 4YG

The Biomedical and Life Sciences website:

www.lancaster.ac.uk/fhm/bls

Disclaimer

The information provided in this brochure is correct at the time of publication (June 2015) but this may be subject to change as we constantly review and improve our degree programmes. This brochure does not form part of any contract between any person and the University of Lancaster.