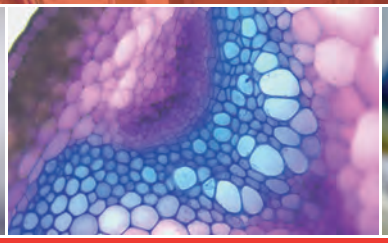
MANCHESTER 1824

The University of Manchester

undergraduate brochure 2012



life sciences

www.manchester.ac.uk/lifesciences

the facts

contents

- Life sciences teaching rated “excellent” in latest independent review
- Life sciences courses ranked in the top three in the country for student satisfaction
- One of the leading centres for life sciences research in the UK
- 95% of life sciences research is of international significance
- Over £150 million spent on new buildings and facilities for the discipline
- Placement year overseas in Europe, Asia, Africa, USA
- Best careers service in the UK
- 4 million books and 41,000 electronic journals in one of the UK’s best university libraries
- Guaranteed accommodation for all first-years
- The UK’s largest students’ union

‘Manchester is a place for individuals, brilliant kids who like to do their own thing… and if you are ready it will release you to do the same...’

The Virgin Guide to British Universities

With a distinguished history of academic achievement and an ambitious agenda for the future, The University of Manchester offers you a learning experience rooted in a rich educational heritage and boosted by cutting-edge research and innovation – all at the heart of one of the world's most vibrant cities.

the university

Part of the prestigious Russell Group of universities, Manchester has much to offer you. As well as the outstanding facilities, resources and opportunities found within an institution of this calibre, the University is highly respected amongst academic and business communities alike – a respect that is conferred upon its graduates.

Innovative

Our tradition of success in learning and research stretches back over 180 years, encompassing the birth of the modern computer, the splitting of the atom and the founding principles of present-day economics. All these and many more world-changing innovations have their roots here, at The University of Manchester.

Rated third in the UK in terms of 'research power' in the last Research Assessment Exercise, today we enjoy a global reputation for our pioneering research, which informs our problem-based approach to undergraduate learning.

Internationally renowned

Since 2005, the University has risen in the influential Academic Ranking of World Universities Survey conducted by Shanghai Jiao-Tong University, from 53rd to 44th in the world, and ninth in Europe – confirming us as a progressive and world-class teaching and research institution.

Our campus is home to more than 37,000 students from around 150 countries, creating a diverse and inclusive multicultural community.

Ambitious

Our mission is to become one of the top 25 universities in the world by 2015 and the preferred destination for the best teachers, researchers and students.

It's a goal that we're well on the way to achieving, backed by a multimillion-pound investment programme in facilities, staff and buildings. This includes a virtual learning environment that offers you flexible access to study resources 24/7, and the Alan Gilbert Learning Commons, a new £30 million resource centre for students opening in 2012.

Distinguished

More than 5,600 academic and research staff – many leaders in their fields, with international reputations – provide stimulating learning environments and excellent standards of teaching.

As a Manchester graduate, you will join a prestigious hall of fame, including 25 Nobel Prize winners among our current and former staff and students. We have more Nobel Prize winners on our current staff than any other UK university.

Sought after by employers

Employers actively target University of Manchester graduates, giving you excellent job prospects.

Our worldwide community of 240,000 graduates can be found in top positions in every imaginable field, including Sir Terry Leahy, former chief executive of Tesco; former Secretary General of Amnesty International Irene Khan; writer/performer Meera Syal and author Louis de Bernieres.

Full of opportunity

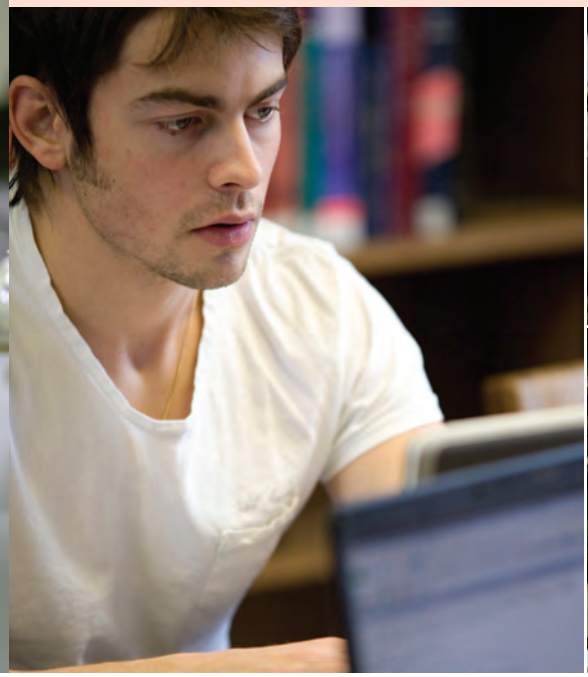
You can take advantage of countless exciting personal development opportunities at Manchester, including career development programmes run by a university careers service that has consistently been voted the best in the UK by graduate recruiters.

Choose The University of Manchester and you will join one of Britain's most forward-thinking universities, which builds on its success year on year – and invites you to do the same.

Find out more…

www.manchester.ac.uk/aboutus

life sciences at manchester



Our Faculty of Life Sciences is one of the best in the country for both research and teaching quality. Decide to study with us and you will be joining a dynamic community of scientists working at the cutting edge of research.

You will benefit from state-of-the-art research facilities, innovative teaching techniques, and the opportunity to be taught by leading experts from across the breadth of the life sciences.

Our broad range of courses and flexible approach allow you to follow your interests while developing your knowledge of new and exciting topics. You could, for example, undertake a field course in Africa or Central America, take a placement in an institution almost anywhere in the world, and hear the views of world leading philosophers on current advances in the Life Sciences.

A leading UK centre for life sciences research

Life sciences is an exciting and fast-moving area, so it is important that your first degree is undertaken in an active, interdisciplinary research environment.

Our curriculum is informed by our research, so you will learn cutting-edge science, taught by the very researchers who have made the discoveries. You have the opportunity to make your own contribution to our research, if you choose to carry out a project in the laboratories of these leading scientists in your final year.

Our facilities are extensive and include state-of-the-art equipment and expertise in many areas of life sciences. We are ranked second in the UK for research power and 95% of our research is classified as being of international significance.

The Faculty has more than 1,000 people involved in research activities and we hold more than £100 million in research grants and contracts. Our advanced research facilities encompass over 28,000m^2 of research space, including: the AV Hill building, a £39 million research facility for neuroscience and immunology; the Michael Smith Building, a £62 million research facility for molecular cell biology; the Manchester Interdisciplinary Biocentre, a £39 million centre that focuses on research at the interface between biology and the physical sciences; and the Core Technology Facility, a £27 million facility in which young businesses work alongside University research groups.

Our international reputation in research will directly benefit you as an undergraduate. You will leave us with a degree from a recognised major research-intensive university.

Manchester offers you…

- Innovative teaching techniques, state-of-the-art facilities and tutors who are leading experts from across the breadth of the life sciences
- The opportunity to join a dynamic community of scientists working at the cutting edge of research
- One of the best life science faculties in the country for both teaching and research quality

Excellent and innovative teaching

Our teaching was rated "excellent" in the latest independent review. The Faculty is an innovator in teaching methods, pioneering the use of computer-based eLearning, and in student support, such as the student-led PASS (Peer Assisted Study Scheme). In addition to traditional lectures, a significant amount of teaching is conducted in informal tutorials, seminars and laboratory sessions, so there are many opportunities for you to interact with staff and other students.

Outstanding teaching facilities include access to more than 200 PCs and a dedicated eLearning team, leading-edge equipment and experimental techniques in our teaching laboratories, and anatomy facilities with a wide range of dissection, histology and computing resources and dedicated teaching staff.

Our experimental grounds currently include a variety of tropical, arctic and alpine plants and a range of glasshouses and controlled growing conditions used in research that include animal mimicry, transgenic cereals and biomechanics. These facilities complement resources at The Manchester Museum, where you have access to important natural history collections and a tropical frog conservation centre.

The quality of our teaching and resources is reflected by a mean student satisfaction rate of 91% across all our courses from our 2010 graduates in the National Student Survey. Several of our courses were ranked in the top three in the country for overall satisfaction.

Play an active role in the Faculty

When you join our Faculty, you will become part of a dynamic scientific and educational community. Because of the favourable ratio of staff to students, there is a friendly and informal atmosphere in which undergraduate students are encouraged to play an active role in the life of the Faculty.

Your views on your course will be sought at all stages. There are student representatives on the education boards, who advise on the organisation and content of each course unit and degree course. The student-staff liaison committee ensures that your views about the courses are discussed regularly and that suggestions can be acted upon.

We use your feedback to continually improve the student experience – for example, we have recently implemented a number of new initiatives, including: second- and final-year student discussion groups; a "with Japanese" social programme; moving some final-year exams from June to January; and introducing an electronic marking system to ensure students get clear, timely and substantive feedback on their written assignments.

Breadth and flexibility of courses

The Faculty of Life Sciences currently offers more than 100 different course units. The breadth of our research affords us expertise in a range of areas, from molecules to cells, plants to animals, and biomedical to population studies. If you have diverse interests, our Biology, Biomedical Sciences and Life Sciences courses allow you to select combinations of subjects not already covered by the more specific degree courses. If your interests also include subjects outside the life sciences, you can choose optional units in other subjects such as languages or law.

All first-year courses have a common core of course units introducing fundamental concepts. This allows you to transfer between most degree courses at the end of your first year and, in some cases, later.

Find out more...

This brochure really can only give you a flavour of the facilities and undergraduate courses on offer. You can find more information on our website: **www.manchester.ac.uk/lifesciences**

If you would like to visit the Faculty before applying and talk to our current students and staff, please contact us in the undergraduate admissions office (see back page for contact details). We will be happy to tell you when our next open day is scheduled, or to organise a personal tour at a convenient time for you.

course details

Course listing

Three-year degrees and degrees with a Year in Industry:

Anatomical Sciences BSc 3yrs
UCAS Code B110

Anatomical Sciences with Industrial/ Professional Experience BSc 4yrs
UCAS Code B111

Biochemistry BSc 3yrs
UCAS Code C700

Biochemistry with Industrial/ Professional Experience BSc 4yrs
UCAS Code C701

Biology BSc 3yrs
UCAS Code C100

Biology with Industrial/ Professional Experience BSc 4yrs
UCAS Code C101

Biology with Science and Society BSc 3yrs
UCAS Code C1V3

Biology with Science and Society with Industrial/ Professional Experience BSc 4yrs
UCAS Code C1L3

Biomedical Sciences BSc 3yrs
UCAS Code B940

Biomedical Sciences with Industrial/ Professional Experience BSc 4yrs
UCAS Code B941

Biotechnology BSc 3yrs
UCAS Code C560

Biotechnology with Industrial/Professional Experience BSc 4yrs
UCAS Code C561

Cell Biology BSc 3yrs
UCAS Code C130

Cell Biology with Industrial/ Professional Experience BSc 4yrs
UCAS Code C131

Developmental Biology BSc 3yrs
UCAS Code C141

Developmental Biology with Industrial/ Professional Experience BSc 4yrs
UCAS Code C143

Genetics BSc 3yrs
UCAS Code C400

Genetics with Industrial/ Professional Experience BSc 4yrs
UCAS Code C401

Life Sciences BSc 3yrs
UCAS Code C102

Life Sciences with Industrial/ Professional Experience BSc 4yrs
UCAS Code C105

Medical Biochemistry BSc 3yrs
UCAS Code C724

Medical Biochemistry with Industrial/ Professional Experience BSc 4yrs
UCAS Code C741

Microbiology BSc 3yrs
UCAS Code C500

Microbiology with Industrial/ Professional Experience BSc 4yrs
UCAS Code C501

Molecular Biology BSc 3yrs
UCAS Code C720

Molecular Biology with Industrial/ Professional Experience BSc 4yrs
UCAS Code C702

Neuroscience BSc 3yrs
UCAS Code B140

Neuroscience with Industrial/ Professional Experience BSc 4yrs
UCAS Code B143

Pharmacology BSc 3yrs
UCAS Code B210

Pharmacology with Industrial/ Professional Experience BSc 4yrs
UCAS Code B211

Pharmacology and Physiology BSc 3yrs
UCAS Code BB12

Pharmacology and Physiology with Industrial/ Professional Experience BSc 4yrs
UCAS Code BBC2

Physiology BSc 3yrs
UCAS Code B120

Physiology with Industrial/ Professional Experience BSc 4yrs
UCAS Code B121

Plant Science BSc 3yrs
UCAS Code C200

Plant Science with Industrial/ Professional Experience BSc 4yrs
UCAS Code C202

Zoology BSc 3yrs
UCAS Code C300

Zoology with Industrial/Professional Experience BSc 4yrs
UCAS Code C301

Degrees with a Modern Language:

Anatomical Sciences with a Modern Language BSc 4yrs
UCAS Code B114

Biochemistry with a Modern Language BSc 4yrs
UCAS Code C705

Biology with a Modern Language BSc 4yrs
UCAS Code C106

Biomedical Sciences with a Modern Language BSc 4yrs
UCAS Code B9R9

Cell Biology with a Modern Language BSc 4yrs
UCAS Code C132

Developmental Biology with a Modern Language BSc 4yrs
UCAS Code C1R9

Genetics with a Modern Language BSc 4yrs
UCAS Code C402

Life Sciences with a Modern Language BSc 4yrs
UCAS Code C103

Microbiology with a Modern Language BSc 4yrs
UCAS Code C502

Molecular Biology with a Modern Language BSc 4yrs
UCAS Code C722

Neuroscience with a Modern Language BSc 4yrs
UCAS Code B144

Pharmacology with a Modern Language BSc 4yrs
UCAS Code B212

Physiology with a Modern Language BSc 4yrs
UCAS Code B122

Plant Science with a Modern Language BSc 4yrs
UCAS Code C201

Zoology with a Modern Language BSc 4yrs
UCAS Code C303

Cognitive Neuroscience and MNeuroSci degrees:

Cognitive Neuroscience and Psychology BSc 3yrs
UCAS Code BC18

Cognitive Neuroscience and Psychology with Industrial/ Professional Experience BSc 4yrs
UCAS Code BCC8

Neuroscience MNeuroSci 4yrs
UCAS Code B141

course details

All courses

Teaching and learning

Choice and flexibility are the hallmarks of our courses. We recognise that your interest in particular aspects of bioscience may develop only when you are more familiar with subjects at university level. Our degree courses in Life Sciences, Biology and Biomedical Sciences in particular provide the opportunity to change to virtually any other at the end of your first year. As well as changing degree courses, you can also opt on, or off, the placement year.

Most of our Single Honours courses are available in three formats:

- **Three-year degree**
- **Four-year degree "with industrial or professional experience"**
- **Four-year degree "with a modern language"**

Our degree courses are modular and composed of a number of units, each of which has the same credit rating. This provides flexibility and allows students on different courses to select different combinations of non-core options. You have a wide range of optional units to choose from so that you can follow your interests. These can be Life Sciences units or – timetable permitting – units from any other Faculty in the University. Popular choices include Law, Chemistry and Languages.

Ben Grimshaw
Medical Biochemistry

"The best feature of studying this degree at Manchester is the ability to refine my degree to my interests over the three years – I've enjoyed a wide range of optional course units, from genetics to proteins to immunology."

All our degree courses use a variety of teaching methods, including:

Tutorials

Tutorials are hour-long sessions that you undertake each week with your personal adviser and a small group of students. They give you the opportunity to get to know your personal adviser and your tutor group, while exploring interesting and topical aspects related to your degree discipline. Activities include discussions, presentations, community projects and group work, which help to hone your transferable skills, such as oral and written communication, time management and teamwork. These skills will contribute enormously to your future employability.

Lectures

Lectures are held in lecture theatres over the campus and the audience can vary from 20 to 500 students. The majority of lectures use the latest technologies to present material in the most effective way, and most have associated eLearning modules to enhance your learning and consolidate your understanding.

eLearning

eLearning is primarily delivered through the University's virtual learning environment, which provides learning resources on demand when you need them. These resources include lecture notes, movies, animations, discussion boards, live classrooms, assessments, quizzes, practice problem sets, lecture podcasts and many other activities to assist your studies. You complete a series of nodes for each unit, and within each node is a set of tasks and assessments. This has proved very effective in supporting and encouraging students in independent learning, and ensures that you keep up with the lecture and practical based material.

Data-handling and critical writing skills

The ability to understand and manipulate scientific data and literature are key skills for any life scientist. You will learn these skills at your own pace through a series of activities in our online learning environment.

Practicals

Practicals are designed to complement your lectures and other studies. Depending on your degree course, you will undertake between three and nine hours of practical work per week, carrying out supervised experiments in small groups in our well-equipped teaching labs. In your first and second years, you will develop your laboratory skills and become familiar with the latest experimental techniques in preparation for an independent project in your final year. Laboratory coursework marks accrue from practical exercises, experiments and reports.

Fieldwork

Some of the units that prove most popular with our students are the field courses. Courses are currently held in several European locations, South Africa, and South and Central America. They offer you the chance to study organisms in a range of environments, from marine to freshwater, temperate to tropical.

Field courses last from one to three weeks and take place in the Easter or summer holidays. The close collaboration between staff and students and the focused nature of these courses offers a rare chance for immersion in a specialist area of field study. You will undertake directed work and independent research projects to develop important skills, including observation, experimental design, data collection and project management. Field courses are assessed via oral and written presentations, group work and projects.

Further information on field courses can be found online: **www.manchester.ac.uk/ls/undergraduate/courses/modules/fieldcourses**

Final-year projects

One of the most exciting parts of all final-year courses is the opportunity for you to carry out an independent in-depth research project. This may be a laboratory- or field-based experimental study, or may involve aspects of the public understanding of science, including education projects (many of which involve close collaboration with local schools). Alternatively, you may be interested in designing an eLearning (electronic-based learning) tool, or a website, or doing in-depth bioinformatics, or meta-analysis, according to your preference and future career path.

A recent innovation is the introduction of enterprise projects, which involve close collaboration with entrepreneurs from local biotech and bioscience start-up companies, and the Manchester Science Enterprise Centre. Groups of students generate business proposals delivered to a 'Lions Lair' presentation to examine their feasibility. One group who did an enterprise project obtained start-up funds for their own biotech business while still in their final year!

course details

Typical first-year timetable

	Monday	Tuesday	Wednesday	Thursday	Friday
9am - 10am			Lecture	Lecture	
10am - 11am	Lecture	Lecture		Lecture	Lecture
11am - 12noon	Tutorial	PASS session	Lecture		Lecture
12noon - 1pm				Data-Handling Clinic	
1pm - 2pm	Frontiers of Science lecture	Practical	No scheduled teaching		Lecture
2pm - 3pm		Practical	No scheduled teaching		
3pm - 4pm		Practical	No scheduled teaching		
4pm - 5pm	Lecture		No scheduled teaching*		

** All students are encouraged to participate in one or more of the wealth of extra-curricular activities on offer from the Athletic and/or Students' Union and inter-University sporting events are focused on Wednesday afternoons*

Assessment

Assessments within the Faculty of Life Sciences include written examinations and independent study assignments, with the proportion contributed by the latter increasing during each year of study. Examination periods are held at the end of each academic semester in January and May/June. The types of assessment vary not only between each level of study, but also between different units.

Year 1

The first-year examination is based predominantly on written papers containing multiple-choice questions (MCQs) and short-note questions. These are mostly one-hour papers, to which are added the results of coursework, electronic problem-based learning (eLearning) assignments and practical unit assessments. For most students, the latter form 20 of the 120 credits for the year and are based on exercises undertaken during the practicals, and on written reports prepared during independent study. Field courses are assessed via oral and written presentations, group-work and/or projects.

You must obtain an overall pass in first-year unit examinations in order to proceed into the second year of study, although the marks do not contribute to the final degree classification.

Year 2

Second-year examinations are primarily essay-based, but some contain short answer questions and MCQs. The assessment of many units also includes some coursework, such as eLearning assignments, essays and seminar write-ups. You will also choose a dissertation that interests you and relates to your programme – an in-depth study of the scientific literature, supervised by an expert in the field. Field courses and practical units are assessed via oral and written presentations, group-work and/or projects.

The second year contributes 25% towards your final degree mark and you are therefore expected to intensify your independent background reading for your degree.

Placement year 1

If you undertake a placement (with industrial or professional experience), you require a mean mark of at least 60% in your first year. You will complete a scientific report and undergo an oral examination on the research you have carried out that contributes 10% to your overall degree mark.

Final year

Final-year written examinations are mostly essay-based and two hours in duration; however, many units include marks for coursework essays and/or debates and oral presentation.

The culmination of the final year is the production of a report on an independently researched project. For most students, this counts for 40 of the120 final-year credits, and can vary from the production and testing of an eLearning resource, through development of educational materials, to fieldwork studies, or a laboratory project in one of the state-of-the-art research labs on site.

course details

Student support

There are several levels of academic and personal support in the Faculty of Life Sciences.

Personal advisor

One of the first people you meet when you arrive in the Faculty will be your personal advisor. This is a member of the Faculty's academic staff who, together with your programme director, will monitor your progress and welfare throughout your time at Manchester. Your advisor will offer individual help and advice whenever you need it – whether you are having any kind of difficulties, or simply wish to discuss optional units or course choice for your next year.

Personal Development Portfolio (PDP)

A key part of your development as an individual during your degree is the Personal Development Portfolio. Your meetings with your personal advisor are closely linked to this interactive resource, which you build up over your university career by assessing at regular intervals how your skills are developing and what your future priorities are. Your advisor discusses the content of your file with you, and suggests ways to develop your skills, if appropriate.

In this way, you will assemble a valuable record of your personal and academic development during your time in Manchester, which will help you when you begin to apply for further study or graduate employment.

Peer-Assisted Study Scheme (PASS)

This popular scheme brings together first-year students with second- and final-year students ('PASS leaders') in weekly meetings. PASS leaders draw upon their own student experience to host open discussions on a range of topics, including academic material, study skills, university life, finance and housing.

These weekly timetabled sessions are a great way to meet people on your degree course and integrate with students from other years.

Support on placements

Faculty staff find suitable placements and you will have a placement officer who will ensure that you apply for those that suit your interests. A member of staff will visit you, whether you are in the UK or abroad, meeting you and your supervisor at your place of work. Before going on placement, you will be able to talk to returning students about their experiences.

Jamie Bonsels
Biomedical Sciences
Represents England in international badminton tournaments

"Balancing uni life with the demands of my sport can be difficult. With the support of the uni and, in particular, the Faculty of Life Sciences, I am managing to cope with the different pressures. The staff have been incredible: whether it be giving up their time to go through lectures, or accommodating deadlines and work. Help has always been available and without this I would not be able to fulfil my sporting commitments."

Catherine Eagle
Pharmacology

"I think the PASS sessions are great in the first semester to help first years to settle in. The aspect of being able to ask questions about the lecture material without the embarrassment of putting your hand up in a huge lecture theatre is great, and the layout of small groups is similar to the college class format, so I think it helps with the transition to university."

Degrees with industrial or professional experience

These degrees offer you a great opportunity to enhance your employability and experience how your subject is applied in the real world. You will undertake a year of professional experience between the second and final year of study, typically in the scientific industry, or an international research centre. The main part of the year is a research project that fits in with the organisation for which you are working.

We have links with over 200 organisations in the UK and worldwide in countries including Germany, Austria, Canada, USA, South Africa, the Gambia and Central America.

Why undertake a year of industrial or professional experience?

A placement will give you what graduate employers are looking for – significant, relevant work experience – thus giving you an advantage in the competitive graduate jobs market. You will see how your subject is applied in the world of work and this experience could help you clarify your own career objectives. If you undertake a placement abroad you will experience a different culture and possibly even improve your language skills. In addition, placements are usually salaried, and some are highly paid.

Where could you go?

We have links with over 200 organisations – last year 54% of our students worked in organisations in the UK (eg AstraZeneca, Pfizer, GlaxoSmithKline, Unilever, Royal Botanic Gardens, Paterson Institute for Cancer Research, Macaulay Land Use Research Institute) and all over the world. Recent placements have taken place in France, Germany, Austria, Canada, USA, South Africa, the Gambia and China.

Many of the latter group of students are placed in English-speaking settings, but students with sufficient linguistic ability and enthusiasm have also been placed in non-English speaking environments, with resounding success.

Adam De Caul
Medical Biochemistry with Industrial Experience

Where did you go for your placement year?
"Medical Research Council in The Gambia."

What were you working on during your placement?
"I was working on malaria, an infectious disease that affects billions of people each year. I was specifically looking at an enzyme HO-1 that is thought to play a role in the pathogenesis of the disease."

What did you get out of doing the placement?
"Doing my placement abroad meant I got an amazing year of living in Africa and experiencing a new culture, food, language and, of course, people. Apart from this I had the unique opportunity of getting to work alongside leading researchers in my field of interest."

What was the highlight?
"Having my placement project work accepted for an international scientific conference was the icing on the cake. I presented my work at the conference in Miami, Florida, this September."

course details

Degrees with a language

If you have a passion for bioscience and enjoy learning foreign languages and experiencing new cultures, this is a perfect degree for you. All of our Single Honours degrees are available as a four-year course incorporating a modern language. We currently offer the following languages: French, German, Italian, Japanese, Mandarin, and Spanish. The third year of these degrees, subject to satisfactory academic performance and placement availability, is spent conducting research in a research institute or university in a country where the language you are studying is spoken.

Why take a degree with a language?

Your linguistic ability will markedly improve through both your taught units and your placement year. Living and working abroad, you will broaden your horizons and develop a diverse friendship group originating from across the world.

Looking to the future, your language skills, and the significant work experience undertaken in your placement year, will make you extremely attractive to potential employers.

What is the proportion of language study to life science study?

You will spend approximately two-thirds of your time studying Life Science units, with the remainder of your time spent studying your chosen language. In addition, there are some associated cultural units available to study alongside most of our "with Language" degrees. You will need effective organisational skills to combine timetables between the Life Sciences and the Languages departments.

Where could you go on your placement year?

Students have undertaken placements in universities throughout Europe under the European Union Erasmus programme, and in Japan and China through bilateral agreements with universities in these countries.

How will we support you?

You will receive extensive help by staff in the Faculty in finding placements. We visit all students at least once on placement and your progress will be actively monitored by a dedicated team.

Modest grants from the European Union are usually available, which provide assistance with living costs and travel. In Japan, competitive scholarships are usually available.

Claire Gaffney
Molecular Biology with French

Where did you go for your placement year?
"Institute national de la santé et de la recherce medical (Inserm) in Paris."

What were you working on during your placement?
"Stem Cell Research, specifically the molecular and cellular consequences of SDHB inactivation, a new tumour suppressor in neuro endocrine cancer."

What did you get out of the placement year?
"I had a mixture of friends, international and Parisian. There is a great social life in Paris, although it was different from my social life in Manchester, less house parties and more going out for cocktails and for coffee. I still haven't kicked the caffeine habit!

"As I spent most of my time on placement with French-speaking people, I saw a big improvement in my French. The year gave me valuable experience working as a research scientist and helped me decide which PhD to do once I finish my degree. I am still in contact with my colleagues from the lab and they have offered me a post-doctoral research job if I decide to go back to Paris after my PhD."

Study abroad

Students on most courses have the opportunity to study abroad for either semester of your second year. This is an excellent opportunity to travel and to gain a fresh perspective on your course through the experience of a different academic system.

Why study abroad?

Participating in the Study Abroad programme will broaden your horizons, enhance your personal development and can dramatically improve your career prospects. You're likely to come back a more mature, focused and confident individual. There is evidence that experiencing a different academic system, combined with a renewed sense of motivation, helps many returnees perform better in their final examinations than students who stay at home.

Where could you go?

Europe – The Erasmus scheme was designed and created by the EU in order to encourage co-operation between students and universities within its member states. Through this scheme, the University has links with around 30 partner universities in, for example, France, Spain, Italy, Greece, Germany, Austria, Switzerland, Poland, Denmark, Norway, Sweden and Finland.

Rest of the world – In the USA, choices range from Arizona to Missouri, Massachusetts to Illinois, and there's always Toronto in Canada. Australia offers Canberra, Melbourne, Sydney and Queensland, while options in the Far East extend to Singapore and Hong Kong.

Will you need to speak a foreign language?

Foreign language skills are not essential for study in Europe, as many of our partners (particularly those in the Netherlands and Sweden) lecture in English. There are also opportunities to study in English-speaking countries outside Europe.

What will it cost?

At present, tuition fees are no higher for your spell abroad; additionally, you are eligible for a non-repayable grant from the Erasmus council (if you study in Europe) to help cover living costs, and some funding is available for pre-study intensive language training.

Michael Natt
Zoology

"Studying abroad at the University of Queensland is an incredible and unforgettable experience. I was given the opportunity to study coral reefs and Australian biodiversity, complete fieldwork in deserts, tropical rainforests and the Great Barrier Reef, while every so often kicking back and enjoying the sun!"

course details

Course summaries

What follows is a brief summary of the content and flavour of each of our courses. More detailed accounts can be found on the UCAS website. While we can be reasonably sure of the content and format of the first year, the biosciences are such fast-moving subjects that it would be unwise for us to give too much information about the detailed content of our units in the second or final year.

For an idea of the types of units that will be offered, please visit the Faculty website, which has details of the current second and final-year units on offer:

www.manchester.ac.uk/lifesciences

Anatomical Sciences

Anatomical Sciences with Industrial/Professional Experience

Anatomical Sciences with a Modern Language

Anatomy is the science that studies the structure and the form of different organisms, including humans, and the relationships of their parts. You will study structure – from the whole human body, to the tissue, cellular and sub-cellular level – and relate structure to function in the adult and during embryonic development. The anatomy of other species is also considered.

The understanding of anatomy and the different anatomical systems (eg skeletal, muscular, cardiovascular, nervous systems) and components (eg muscle cells, neurons) has a major repercussion in modern medicine, pathology and in the comprehension of human evolution.

The Anatomical Sciences course is extremely suitable for all students interested in all biological aspects related to human structure, function and dysfunction, and provides an excellent foundation for a career in biomedical research.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including: anatomy, physiology, pharmacology, molecular biology, genetics, biochemistry and the nervous system. This year also helps you hone the essential data handling and laboratory skills required by all life scientists.

Year 2

You will continue your studies in greater depth and begin to specialise. You will study a range of anatomical and physiological topics, which currently includes the endocrine (hormone), reproductive, gastrointestinal, renal and sensory systems and developmental biology (eg how a single fertilised cell develops into a complex organism). During the Research Skills unit, you can take advantage of our exceptional dissecting room facilities to carry out dissection, histology, cytology and morphometry.

Final year

Current units enable you to combine the classical study of anatomy with some forefront and cutting edge knowledge of the different aspects of anatomical sciences research. Theoretical study will be underpinned by performing dissections in our anatomy facilities. You will take a more in-depth look at developmental biology and how imaging methods are used in medical and life science research. You will also undertake an independent in-depth research project, which will allow you to carry out your own anatomical investigation.

Kim Leong
Anatomical Sciences

"The anatomy facilities here at the university are incredible. The labs are really modern and have everything you need. I get the chance to do human dissection this year, which will be really interesting."

course details

Biochemistry

Biochemistry with Industrial/Professional Experience

Biochemistry with a Modern Language

Have you ever wondered about the basic chemistry of life? Biochemistry is the chemistry of the substances and processes occurring in living cells and tissues. This subject forms the basis of virtually all of the life sciences and many exciting discoveries made in this subject have contributed to our understanding of life, the solving of medical problems, and to the discovery and production of safe and effective drugs.

The course at Manchester is broad in scope, with topics including the structure of biomolecules and how they interact in essential processes and pathways in our cells, through the actions of enzymes and how they can be inhibited by drugs, to genetic engineering and molecular biology.

The principles and techniques of biochemistry are transferable to a range of biological disciplines, providing an excellent basis for a career in almost any area of the life sciences.

Year 1

You will gain a broad introduction to the life sciences covering key concepts including biochemistry, genetics, pharmacology and molecular biology. You will study aspects of organic, inorganic and physical chemistry that are relevant to biological systems. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will continue your studies in greater depth and begin to specialise. Current topics include metabolism, the chemistry and 3D structure of biomolecules, how cells send signals both within and between themselves and how the genome is regulated and maintained. During the Research Skills unit, you have the opportunity to carry out techniques that are widely used in current life science research, including affinity chromatography, Western blotting and mass spectrometry.

Year 3

Final-year topics reflect the current hotspots of bioscience endeavour and the research interests of staff. Current topics include the biochemical basis of disease and how the structure of biomolecules and cells allows them to recognise and interact with each other. You will undertake an independent in-depth research project, which will allow you to carry out your own biochemical investigation.

Ruth Watkinson
Biochemistry with Industrial Experience

"I think the range of courses and facilities at the Faculty of Life Sciences are excellent. The staff are enthusiastic and willing to take time to help you. I also had a fantastic time on my placement year in Florida, I really learnt a lot about lab work and now hope to go into research – and it was great to live in the sunshine!"

Biology

Biology with Industrial/ Professional Experience

Biology with a Modern Language

Biology – the study of living organisms – is a wide-ranging topic in which you may have many potential areas of interest. These courses will suit you if you want a broad biological course in which early specialisation is avoided.

You can keep your options open and cover a wide range of areas, or you have the flexibility, when you identify areas that interest and hopefully excite you, to focus on particular biological topics. You can benefit from a wide spectrum of training in the life sciences from staff who are specialists in their chosen subject areas. Many biology students report that field courses were their favourite units; these take place in locations in the UK and abroad, chosen for the richness and interest of their flora and fauna.

Year 1

You will gain a broad introduction to the life sciences covering key concepts including genetics, biochemistry, biodiversity and molecular biology. This year also helps you hone the essential data handling and laboratory skills required by all life scientists.

Year 2

You will continue your studies covering topics in greater depth. Current units range from cell biology at the molecular level up to the study of populations and ecosystems, allowing you to learn more about the biology that interests you. You can choose from a range of research skills units, including field courses, allowing you to develop your research techniques in areas as diverse as ecology, microbiology and neuroscience.

Final year

You have an extensive choice of topics for your final-year studies. At this stage, there is the opportunity to specialise by selecting closely related units, or to maintain breadth in training, according toy our preference. The highlight of the year is your independent in-depth research project, which could involve lab work, creating an education project for a school or planning a new bioscience enterprise.

course details

Biology with Science and Society

Biology with Science and Society with Industrial/Professional Experience

Biology with Science and Society offers you the opportunity to study biology within its historical, social, political and ethical context. Many recent scientific, technological and bio-medical topics – including genetic modification, stem cell and cloning research, the uses of DNA profiling and global environmentalism – have generated intense public debate.

You will use historical and related skills to explore the origins and development of these and other issues, and to consider how they impact upon and become a part of our contemporary culture. The study of science and society is taught by specialist staff from the Faculty's Centre for the History of Science, Technology and Medicine. This course provides an excellent basis for non-laboratory-based science careers such as museum work, the media, or science policy work.

Year 1

You will gain a broad introduction to the life sciences covering key concepts, including genetics, biodiversity and microbiology. You will explore the relationship between science and society through study of the history of biology, the history of medicine and the portrayal of science through resources such as literature and film. This year also helps you hone the essential data handling and laboratory skills required by all life scientists.

Year 2

You will continue your studies in greater depth, covering topics that currently include the history of infectious diseases in Europe and the communication of science, technology and medicine through the media. There are a wide range of optional units to choose from, ranging from ecology to neuroscience, therefore you can choose the areas that interest you. You will develop your research skills and academic writing skills through your research project.

Final year

Final-year topics reflect the current hotspots of bioscientific endeavours and the research interests of staff, and are continually updated and replaced. You will explore the relationship between science and society through a range of subjects, which currently include the social context of mental illness and the history of forensic science. You can choose course units from across the whole spectrum of life sciences topics, from plant sciences to human disease. You will undertake a project that provides an in-depth study of a topic of historical and contemporary importance in the biosciences.

Gemma Reed
Biology with Science and Society

"The staff in the History of Science, Technology and Medicine Centre are so approachable. If you are having trouble with an essay, or don't understand a lecture, you can pretty much ask anyone and they are eager to help you."

Biomedical Sciences

Biomedical Sciences with Industrial/Professional Experience

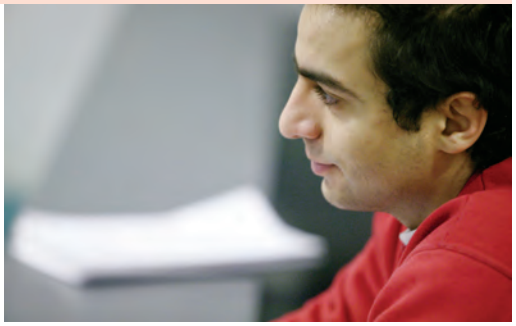
Biomedical Sciences with a Modern Language

Biomedical science is the application of biology-based science to medical use, be it research, health monitoring or treatment. Improvements in healthcare continue to be driven by dramatic advances in the basic biosciences. These degree courses offer you a broad, up-to-date training in a wide range of medically related disciplines, including physiology, pharmacology, neuroscience, cell biology, microbiology, anatomy and histology, genetics, biochemistry, immunology and more.

The courses offer flexibility and have a strong practical component, providing a sound basis for a career at the forefront of medical research.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, microbiology, anatomy, physiology, the cells of the nervous system, pharmacology and molecular biology. This year also helps you hone the essential data handling and laboratory skills required by all life scientists.



Year 2

You will continue your studies covering topics in greater depth. There is a wide range of biomedical science units to choose from, currently ranging from human physiology, to immunology and cell biology; therefore, you can choose the areas that interest you. You can choose from a range of research skills units, allowing you to develop your research techniques in areas such as anatomy, microbiology or molecular biology.

Final year

Our final-year units are designed to reflect the current hotspots of bioscience endeavour and the research interests of staff. You have the choice of either maintaining a broad range of topics, or specialising in one or two particular areas of biomedical science that interest you, for example cancer or infectious disease. The highlight of the year is your independent in-depth research project, where you have the opportunity to join a research group, either in the Faculty of Life Sciences, or local hospital. Alternative research projects allow you to produce and evaluate eLearning or educational resources, or to work in teams to generate a business plan around an idea developed from your life sciences interests.

course details

Biotechnology

Biotechnology with Industrial/Professional Experience

The exploitation of biological systems has had a major commercial impact over the last decade. Biotechnology will continue to grow in the post-genomic era, in areas ranging from drug discovery, to stem cell research and genetic engineering. As well as explaining the science behind biotechnology, this course will also explain how new start-up biotechnology companies are created, how to explore the market potential of products and processes, how to create business plans and how money is raised from venture capitalists.

Our courses are designed to produce graduates who will have a solid understanding of science, technology, and business management, along with the entrepreneurial skills required to exploit technological advances within a competitive environment. This blend of skills will be invaluable to future employers, and provides a springboard for the budding biotechnology entrepreneurs of the future.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, microbiology, pharmacology and molecular biology. You will study fundamental concepts of management and entrepreneurial skills. This year also helps you hone the essential data handling and laboratory skills required by all life scientists.

Year 2

You will continue your studies covering topics in greater depth. You have a degree of flexibility in the course units you choose, but will focus on life science topics that are likely to have an entrepreneurial application, such as post-genomic technology and resources, microbiology and plant biotechnology. You will also learn the skills required to develop a new business or project. In your Research Skills unit, you can choose to develop your research techniques in key areas ranging from biochemistry to microbiology to molecular biology.

Final year

In order to develop your entrepreneurial skills, you will work on a short project to investigate the development of a new product or service. There is an extensive and diverse range of life science topics for you to choose as optional units, which currently includes bioethics, the molecular biology of cancer and the immune response. The highlight of the year is your independent in-depth research project, which could involve lab work or planning new bioscience enterprise.

Nida Asnida Baharin Md Daud
Biotechnology

"Our lab modules are very helpful and stimulating. We have to design our own experiments instead of just following the lab manual. My course also has some interesting entrepreneurial units and my favourite assignment so far has been creating an invention and acting as an entrepreneur presenting it to a small audience."

Cell Biology

Cell Biology with Industrial/Professional Experience

Cell Biology with a Modern Language

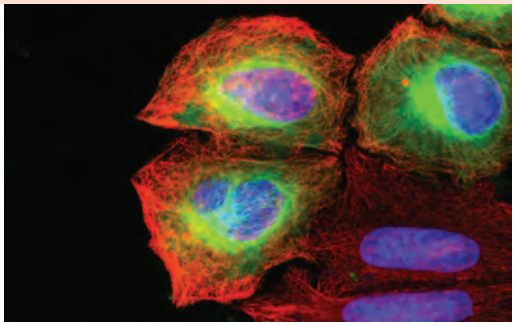
Cell biologists want to understand how the cells do what they need to do, working from molecules, through whole cells, up to tissues and organs. Cell biology integrates other life sciences, such as biochemistry and molecular biology, to explain the structure and function of cells. It also considers how cell diversity arises and how cells co-operate and communicate with each other in normal tissues and in developing embryos.

Cell biology is one of the major growth areas of biosciences in the 'post-genomic' era and uses new technologies, including cell culture, manipulation of genes, monoclonal antibodies and advanced light and electron microscopy. It is an area of vigorous internationally recognised research within the Faculty.

Developments in cell biological research support the existing and future needs of society in many areas of medicine, including stem cell biology, cancer research, the control of autoimmune disease and the study of birth defects.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry and molecular biology. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.



Year 2

You will continue your studies covering topics in greater depth. Current units consider the important role of the cell membrane in transferring signals and transporting ions and solutes, how cells co-ordinate their activities and movement using complex structures and biomolecules and how they adapt to changes in development and environment. In your Research skills unit, you will undertake widely used cell biology techniques, such as immunofluorescence microscopy.

Final year

You have a wide choice of cell biology topics for your final-year studies. You can currently choose to study stem cells, discover how cells communicate with each other, or learn about the process that controls cell division and goes awry during cancer. The highlight of the year is your independent in-depth research project, which could take place in the lab of one of our leading cell biology researchers.

course details

Cognitive Neuroscience and Psychology

Cognitive Neuroscience and Psychology with Industrial or Professional Experience

One of the most challenging problems in modern biology is to understand the behaviour of both animals and humans in terms of brain mechanisms and evolutionary principles. Approaches to this problem are diverse, varying from the study of biological systems at the molecular level, to analysis of human performance. By combining studies of major topics in experimental psychology and neuroscience, this course provides a broad background in this exciting field of behavioural science.

The psychology component covers topics such as: how humans and animals think (cognitive processes); how the world is sensed (perception); comparative and developmental studies; and abnormal psychology. The neuroscience component of the course covers topics such as: animal behaviour; learning and memory; the action of drugs on the nervous system; and how humans and animals sense and respond tot heir environment.

This degree is accredited by the British Psychological Society (BPS), which means as well as providing a solid foundation for a career in the life sciences, this degree also provides the first step towards professional chartered psychologist status.

Year 1

You will gain an introduction to life science topics, including the nervous system and pharmacology, which are relevant to cognitive neuroscience. Psychology topics will include social and health psychology, brain structure and function, statistics and perception and cognition. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

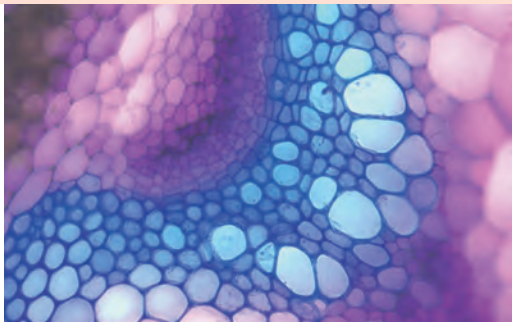
You will study the nervous system in more depth, learning about drugs that affect the brain and nervous system, how we process sensory and motor information and the structure and function of the 'excitable cells' of the nervous system. You will be introduced to topics including intelligence, personality and developmental psychology. During the Research Skills unit, you have the opportunity to carryout techniques that are widely used in current neuroscience research, including electrophysiological, biochemical and histological methods.

Final year

Final-year topics are continually updated and replaced to ensure they are up-to-date with latest life science and psychology research. Current units range from the development of the nervous system, to face perception and the acquisition of language. The highlight of the year is your independent in-depth research project, which you can choose to take in the Faculty of Life Sciences or the School of Psychology. This degree is only accredited with the British Psychological Society (BPS) if the latter option is chosen.

Philippa May
Cognitive Neuroscience and Psychology

"There is a wide range of course units to choose from, all of which are very well taught and fascinating, especially in the third year. What I have enjoyed the most is my third-year project, as I have had the chote to research a specific area – a neurodegenerative language problem – that I am really interested in."



Developmental Biology

Developmental Biology with Industrial/Professional Experience

Developmental Biology with a Modern Language

Developmental biology explains how the single cell formed at fertilisation forms an embryo and then a fully formed adult organism. For this to happen, the fertilised egg must grow and divide to produce the many cells within the adult organism; different types of cells (such as nerves, muscles and skin) must be produced; these cells must be arranged together to form the organs of the body; and these organs must be positioned appropriately in the body. Altogether, these ensure, for example, that hands form at the ends of arms, not legs, and flowers on stems, rather than roots.

Our understanding of developmental biology is having a significant impact on our understanding of evolution and modern medicine, including treatment of birth defects, infertility and cancer in humans. Of particular interest is the use of stem cells to engineer replacement tissues and organs, which could revolutionise medicine.

Developmental biology is a multidisciplinary field that integrates genetics, molecular biology, biochemistry, cell biology, anatomy, physiology and computer modelling. Consequently, if you choose this course, you will gain research-driven knowledge and experience in a broad range of biological subjects, from the molecular functions of individual genes and proteins, to the structure and function of whole organs.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, biodiversity, anatomy, physiology and molecular biology. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will be introduced to the principles of developmental biology, in particular how organisms make different types of cells and arrange these cells to form the adult organism. You will also undertake a more in-depth study of genetics and learn how cells co-ordinate their activities and movement to make tissues and organs. Optional course units currently range from animal diversity to the study of cells and tissues in human disease, so you can choose the areas that interest you. In your Research Skills unit, you will undertake developmental biology experimental techniques such as screening for mutant organisms to understand how they develop and causing cells to differentiate into different tissue types.

Final year

You will study advanced developmental biology and related topics, which currently include stem cells and developmental neuroscience. There is also a range of optional units to choose from that reflects the current hotspots of bioscience endeavour and the research interests of staff. The highlight of the year is your independent in-depth research project, which could take place in the lab of one of our world-leading developmental biology researchers.

Jenaid Rees
Developmental Biology

"Being a student on one of the smaller courses in the life sciences is great. There are only ten students in my year, so we have all become really close friends. In addition to this, as a small group we are able to have regular discussions with our course director so we can keep updated with any changes that are to be made to the course, ask for advice when needed and give our opinion on course units."

course details

Genetics

Genetics with Industrial/ Professional Experience

Genetics with a Modern Language

Genetics is of fundamental importance to all branches of modern biology, from evolutionary biology to medicine, and extends into many practical areas, such as biotechnology and agriculture. You will discover the principles of heredity and evolution and learn how we can map genes, and understand their function.

You will consider how the development of multi-cellular organisms can progress from a single cell through regulated courses of gene expression, and learn the detailed mechanisms by which genes can be switched on and off. You will understand how model organisms, such as the fruit fly and the mouse, are of enormous biomedical importance, and learn how our genetic make-up can predispose us to different diseases.

The human genome project has provided us with the sequence of the entire human genome and identified around 25,000 human genes. The challenge now is to understand the function of all these genes, determine how they cooperate to make us who we are, and to learn how we can best use this knowledge to improve human society. More recently, the advent of low-cost next-generation DNA sequencing technologies will provide a wealth of genetic information for many different organisms and many different people. Genetics will therefore play a key role in deciphering and utilising this wealth of information in the future.

Year 1

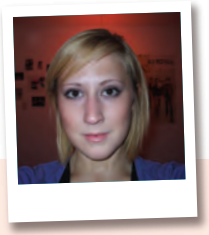
You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, biodiversity and molecular biology. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will continue with more in-depth study of genetics topics, including evolutionary biology, organismal genetics, regulation and maintenance of genomes and modern genetic techniques. You have a range of more than 20 optional course units to choose from, which currently includes units focussing on biochemistry, cell biology, developmental biology, microbiology, immunology, physiology, ecology and human diseases. You can therefore choose the areas that interest you the most. In your Research Skills unit, you will learn modern genetics research techniques and apply them to specific research projects.

Final year

You have a wide choice of genetics topics for your final-year studies. Topics currently include the role of genes in human disease and clinical research, the molecular mechanisms that regulate the human genome and how the genes that control development are conserved between very different species. The highlight of the year is your independent in-depth research project, which could take place in the lab of one of our leading genetics researchers.



Rosanna Pagan
Genetics

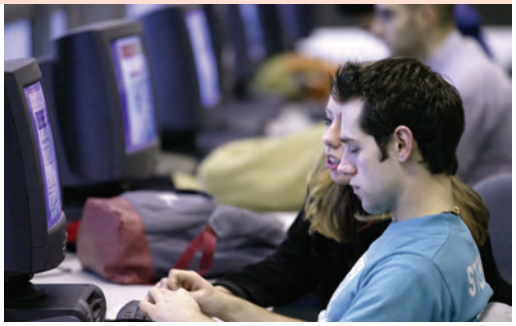
"I find the lab work particularly interesting – we use modern techniques and equipment to investigate genes responsible for particular diseases. I enjoy working with friends in the labs, it is really fun even if the experiment goes wrong!"

Life Sciences

Life Sciences with Industrial/Professional Experience

Life Sciences with a Modern Language

If you are committed to biosciences, but have not yet decided on the area in which you would like to specialise, this course will help you to make the decision at the end of your first year from a position of greater knowledge. The combination of units taken in the first year enables you to transfer to almost any of the degree courses within the Faculty of Life Sciences. Your individual study course will be carefully planned with advice from your advisors.



Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry and molecular biology. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will have developed interests and obtained advice to allow you to transfer onto a more specialised degree course.

course details

Medical Biochemistry

Medical Biochemistry with Industrial/Professional Experience

These courses are designed for biochemists who are considering a career in research into the biochemical basis of disease and therapeutic medicine.

Medical biochemistry addresses the functioning of normal and diseased organisms from a biochemical point of view. Courses will provide you with a fundamental grounding in the principles of biochemistry, such as protein structure and function. As you progress, there will be optional course units that show you how biochemistry allows us to understand and treat diseases. Subject areas include the molecular biology of cancer, cell cycle control and genetic diseases.

This area is very promising in terms of career development, because many pharmaceutical and healthcare companies require well-trained medical biochemists. Graduates become key employees in the efforts of such companies to develop new drugs targeted against specific enzymes, hormone receptors, or other biologically important molecules.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, anatomy, physiology, pharmacology and molecular biology. In addition, you will study topics in chemistry that are relevant to biology. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise, studying biochemistry in more depth. Topics currently include metabolism, the chemical structure and function of important biomolecules including proteins, and the cellular mechanisms underlying common human diseases. You can choose from optional units ranging from immunology to drug development. During the Research Skills unit, you have the opportunity to carry out techniques that are widely used in current life science research, including spectrophotometry, electrophoresis and Western blotting.

Final year

You will have a wide choice of biomedical science and biochemistry-based topics to choose from in your final year. You will study the biochemical basis of diseases such as diabetes, obesity, atherosclerosis, fibrosis and osteoporosis and can choose optional units that currently include the molecular biology of cancer and stem cells. The highlight of the year is your independent in-depth research project, which could take place in the labs of one of our leading medical biochemistry researchers.

Ben Grimshaw
Medical Biochemistry

"I chose to do Medical Biochemistry because I knew I didn't want to do Medicine, but I wanted to do a degree that looked at the finer details of disease and what goes on at the cellular level. I plan to become a clinical scientist within the NHS, working behind the scenes in hospitals and identifying the link between the patient and their illness."

Microbiology

Microbiology with Industrial/Professional Experience

Microbiology with a Modern Language

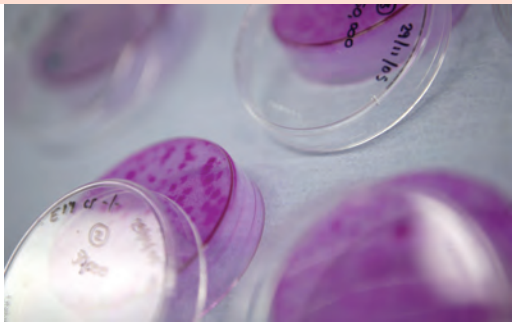
Microbiology involves studying the biology of microorganisms, including bacteria, viruses, fungi and protozoa.

One of the major aims of our degree is to explain the biological basis of bacterial, viral, fungal and protozoan diseases, with strong emphasis on the molecular biology of infection processes. The degree also examines how microbes can be useful to us through their role in the carbon and nitrogen cycles and in food production.

Microbiologists are needed to do the research required for the future battle against diseases worldwide and in order to exploit microbes in the production of food. These are some of the many new employment opportunities in the rapidly expanding field of microbiology, a subject that is vitally important to our health and economic welfare.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, microbiology, biodiversity and molecular biology. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.



Year 2

You will begin to specialise, undertaking more in-depth study of bacteria, parasites, fungi and viruses, including their structure and function and how they can cause disease. You will learn how the body responds to pathogenic microbes as well as other aspects of immunology such as autoimmune disease. During the Research Skills unit, you have the opportunity to carry out techniques that are widely used in current microbiology research, including aseptic technique, preparation of growth media and the use of commercial biochemical test kits.

Final year

Final-year topics are continually updated and replaced to ensure they are up-to-date with latest bioscience research. Current units include the bacterial infections of man and cutting-edge topics and techniques in microbiology. The highlight of the year is your independent in-depth research project, which could take place in the labs of one of our leading microbiology researchers.

Cate Winstanley
Microbiology

"I changed courses to Microbiology at the start of my second year and made the perfect choice. The university's facilities are excellent and the enthusiasm and support from staff are second-to-none. I am starting my lab research project this year and I am really looking forward to working with some top researchers in my field."

course details

Molecular Biology

Molecular Biology with Industrial/Professional Experience

Molecular Biology with a Modern Language

Molecular biology is a discipline that underpins much of today's biological research. It studies the interactions between molecules and systems in a cell – how biological processes are regulated and orchestrated at a molecular level by macromolecules, which interact and work together like a well-oiled machine.

Over the last decade, recombinant DNA technology has allowed molecular biologists to make enormous advances in understanding fundamental biological processes, by analysing and manipulating genes and proteins. This has culminated in the completion of several large genome projects that are changing the face of modern biology, especially in areas of medicine, agriculture and biotechnology. We are starting to understand the molecular basis of diseases such as cancer, and discovering how some of these conditions can be treated using genetic tools or engineered cells. Molecular biology overlaps with biochemistry, genetics and cell biology, and the structure of this course reflects this.

Your Molecular Biology degree will equip you with the skills and understanding you will need to take your place at the cutting edge of biomolecular research.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, microbiology and basic molecular biology. In addition, you will study topics in chemistry that are relevant to biology. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise, studying molecular biology and genetics in more depth. Topics are likely to include: metabolism, post-genomic technologies and resources, the structure and function of proteins, the role of the cell membrane and how cells co-ordinate their activities and movement using complex structures and biomolecules. You can choose from optional units ranging from parasitology to developmental biology. During the Research Skills unit, you have the opportunity to carryout techniques that are widely used in current molecular biology research, including the use of bioinformatic software and Southern blotting.

Final year

You will have a range of molecular biology topics to choose from in your final year. These reflect the current hotspots of bioscience endeavour and the research interests of staff, and thus are subject to change. Currently topics include the molecular biology of cancer, plant biotechnology and how important molecules such as DNA and RNA recognise and interact with each other. The highlight of the year is your independent in-depth research project, which could take place in the labs of one of our leading molecular biologists.

Neuroscience

Neuroscience with Industrial/Professional Experience

Neuroscience with a Modern Language

Masters in Neuroscience (MNeurosci)

Neuroscience is the study of the brain and nervous system and how they work to generate behaviour, perception, movement, thought, memory and other key functions. These studies call on a wide range of knowledge and experimental techniques. New molecular approaches are advancing our knowledge of membrane receptor structure and giving remarkable progress towards understanding neural development. There have also been major advances in our understanding of the biology of higher brain function and the pathogenesis of a variety of neurological disorders, such as Alzheimer's disease and Parkinson's disease.

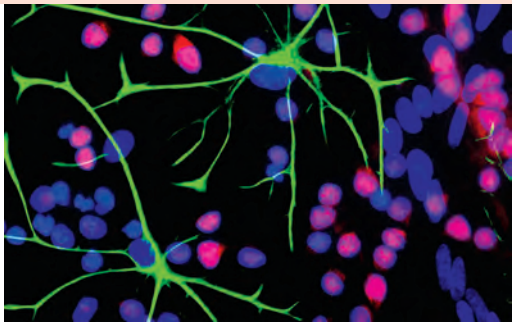
The MNeuroSci course is one of the few undergraduate masters in neuroscience in the UK.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, molecular biology, anatomy, physiology, pharmacology and neuroscience. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise, studying neuroscience topics that could include drugs that affect the brain and nervous system, how we process sensory and motor information and the structure and function of the 'excitable cells' of the nervous system. You can choose from optional units ranging from animal diversity to immunology. During the Research Skills unit, you have the opportunity to carry out techniques that are widely used in current neuroscience research, including electrophysiological, biochemical and histological methods.



Year 3

You will have a range of neuroscience topics to choose from in your final year. These reflect the current hotspots of bioscience endeavour and the research interests of staff. Current topics include how the nervous system develops, hormones and behaviour in animals and the role of neuroinflammation in neurological disease. The highlight of the year is your independent in-depth research project, which could take place in the labs of one of our leading neuroscience researchers.

Year 4 (MNeuroSci students only)

You spend your final year applying the knowledge and experience gained in the first three years of study to a single research question in a sponsoring laboratory. This gives the most successful students the chance to really make a mark while still undergraduates.

Shoshana Ajoodan-Poor
Neuroscience

"What I love about neuroscience is that we are still discovering things. We learn different theories about a topic, such as why we sleep, and you know that in the next ten years you, or someone sitting next to you in a lab, could be finding out the answer to that question. I find that really exciting! I'm so happy that I have chosen Manchester and if I got the chance to do it all again, I would."

course details

Pharmacology

Pharmacology with Industrial/Professional Experience

Pharmacology with a Modern Language

Pharmacology is the study of drug actions on living systems – where they act, what they do, how they are metabolised, and how they exert toxic effects. Understanding all of this requires studying drug actions at levels ranging from the single molecule to the whole organism. Pharmacology is therefore a very broad discipline, taking in aspects of molecular biology, chemistry, physiology and neuroscience. This course examines both the actions of current drugs and the development of new drugs. It is aimed at people who see their future career in the pharmaceutical industry.

The pharmaceutical industry is the UK's top research sector. One-quarter of the world's top medicines were developed in the UK. In 2003, this translated into the pharmaceutical industry spending £3.2 billion on UK research and development, and employing around 73,000 people. A further 250,000 people work in related industries, so all this adds up to a whole lot of career opportunities.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, molecular biology, anatomy, physiology, pharmacology and neuroscience. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise, studying topics that could include: the process of drug development; the effect of drugs on the brain; the structure and function of endocrine glands and the actions of the hormones they produce; and how cells and tissues are affected in disease. During the Research Skills unit, you have the opportunity to carry out techniques that are widely used in current pharmacology research.

Final year

Final-year pharmacology topics reflect the current hotspots of bioscience endeavour and the research interests of staff and are frequently updated and replaced. Current topics include drug toxicity and the role of drugs in treating neurological diseases. There are a variety of optional units to choose from, ranging from bioethics to immunology. The highlight of the year is your independent, in-depth research project, which could take place in the labs of one of our leading neuroscience researchers.

Pharmacology and Physiology

Pharmacology and Physiology with Industrial/Professional Experience

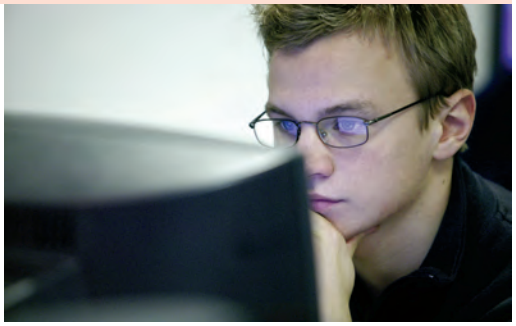
These degrees take the most critical aspects of the disciplines of pharmacology and physiology and integrate them to form a structured programme of study. In the final year, your advisor will help to ensure that your course of study involves a balance between both subjects. Studying these two closely related disciplines will equip you for careers in either field, or in areas in which knowledge of both subjects is valuable. Popular choices are careers in research or postgraduate medicine.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, molecular biology, anatomy, physiology, pharmacology and neuroscience. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise, studying pharmacological concepts that could include the process of drug development and the effect of drugs on the brain. The structure and function of key body systems (eg the gastrointestinal, renal, endocrine and reproductive systems) will be explored and you will learn about the structure and function of endocrine glands and the actions of the hormones they produce, as well as how cells and tissues are affected in disease. During the Research Skills unit, you have the opportunity to carry out techniques that are widely used in current pharmacology or physiology research.



Final year

Final-year topics reflect the current hotspots of bioscience endeavour and the research interests of staff. Current pharmacology topics include ion channels and transporters (important targets for many drugs), drug toxicity and the role of drugs in treating neurological diseases. Current physiology topics include diseases of the endocrine system (diabetes and thyroid diseases) and cardiovascular health and disease. The highlight of the year is your independent, in-depth research project, which could take place in the labs of one of our leading pharmacology or physiology researchers.

Jenni Walton-Gould
Pharmacology and Physiology

"Pharmacology and Physiology was the perfect choice for me: I have learnt about some of the most striking phenomena of the body, and also how to understand the processes involved in disease and how different treatments work. I have also been able to study some slightly unusual optional units. In my second year, I was able to go and watch a post mortem at Manchester Royal Infirmary to complement a pathology course unit. This was incredibly memorable and interesting, although not something I would do again!"

course details

Physiology

Physiology with Industrial/ Professional Experience

Physiology with a Modern Language

Physiology is the study of function in living systems. This could be in plants and animals, but in Manchester we concentrate mainly on the function of humans and other mammals. Physiologists work at the level of whole organisms, tissues, cells and now molecules, and we use a wide range of methods in our experiments. A major challenge to physiologists in this the post-genomic era is to determine the function of the many uncharacterised proteins encoded by the human genome. This will involve understanding how these proteins influence the activity of cells, tissues and the whole organism in health and disease.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, molecular biology, anatomy, physiology, pharmacology and neuroscience. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise, studying physiological topics that could include the structure and function of a range of body systems, such as the gastrointestinal, renal, endocrine and reproductive systems, and the 'excitable cells' of the nervous system and endocrine glands, and the hormones they produce. During the Research Skills unit, you have the opportunity to carry out techniques that are widely used in current physiology research and to complete a research project related to the human response to exercise.

Final year

Final-year topics reflect the current hotspots of bioscience endeavour and the research interests of staff, and are continually updated and replaced. Current topics include diseases of the endocrine system (diabetes and thyroid diseases) and cardiovascular health and disease. Optional subjects range from the study of parasites to body clocks. The highlight of the year is your independent, in-depth research project, which could take place in the labs of one of our leading physiology researchers.

Dean Webster
Physiology

"The best part of the course is the weekly lab session. It's a good chance to follow up on lecture content, great to see what you've learnt in action and an opportunity to have fun and make friends too. It can be a lot of hard and challenging work, but it is worth it."

Plant Science

Plant Science with Industrial/Professional Experience

Plant Science with a Modern Language

Plants lie at the base of nearly every food chain on our planet. Directly or indirectly, they provide us with all our dietary requirements and many of our raw materials for industry, clothing and leisure. Many plants are crucially important in biotechnology – providing, for example, vaccines, pharmaceuticals and even plastics. Plants are being looked to as a possible solution to climate change; crops are increasingly being grown to provide biofuels. In this context, plant sciences are more important now than ever before.

The Plant Science course at Manchester examines the growth, development and productivity of plants. To understand and exploit these processes, it is necessary to apply a wide range of biological areas, including genetics, molecular biology, biochemistry and cell biology. There is a rich provision of seminars and interactive events; field studies are an enjoyable part of our provision. If you enter one of these degree courses, you may attend a field course on the Mediterranean island of Majorca, when the orchids are in bloom in the Easter vacation of your first year. A tropical (eg Ecuador) or UK-based field course builds on this in the second year.

Students doing Plant Science with Industrial or Professional Experience go on a huge variety of placements in their third year of study, including the Millennium Seed Bank, Royal Botanical Gardens (Kew), Ecotron research, agrochemical and organic farming-related research.

Plant scientists, by developing a more comprehensive knowledge, have a realistic opportunity to directly impact on the significance of plants, both in global ecosystems and in our lives in the 21st century. This is an area with a recognised skills shortage, so well qualified plant scientists are in high demand.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, biochemistry, molecular biology, biodiversity and microbiology. You will study plant adaptation on a field course on the Spanish island of Majorca. This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise, studying modern topics in plant science that could include plant development, the sequencing of plant genomes, the science behind genetically modified plants and how the physiology of plants allows them to adapt to extreme conditions. During the Research Skills unit, you will study biodiversity, applying the techniques used by environmental consultants and field-based biologists.

Final year

Final-year topics reflect the current hotspots of bioscience endeavour and the research interests of staff, and are continually updated and replaced. Current topics include: plant biotechnology; plant development; and the effects of pollutants and climate change on plants, agriculture and ecosystems. The highlight of the year is your independent, in-depth research project, which could be lab-based – for example on GM crops cultivated in our extensive plant growth chambers – or fieldwork in our well-equipped experimental grounds. Alternatively, you could create an education project for a school or plan a new bioscience enterprise.

Tommy Shaw
Plant Science

"I'm looking forward to going to a field course in the rainforest in Ecuador in the summer. It's a good chance to get hands-on experience and see tropical plants and animals in their natural ecosystem."

course details

Zoology

Zoology with Industrial/ Professional Experience

Zoology with a Modern Language

Zoology studies the life of animals from cellular organisation, through structure and physiology, to behaviour, ecology and the organisation of populations. Zoology has been around since at least the mid-17th century, but it is no less important a subject nowadays. Humans have been destroying habitats and hunting other animals for thousands of years and recent industrialisation and population growth have led to significant climate changes. These activities threaten all the species on Earth and a better understanding of animal life is essential if we are to minimise the deleterious effects.

In addition, general interest in animals has never been higher. Studying a wide range of animals is providing enormous insight to understanding some of the issues in general biology and can have very unexpected spin-off benefits in medical and engineering areas.

Zoology at Manchester is broadly based, covering all the key areas mentioned above. The flexible structure of the biology degrees at Manchester mean that it is easy to mix in other course units, whether plant science or molecular biology, to gain a competitive skill-set in order to pursue a lifelong career with animals. Your theoretical study is enhanced by knowledge and skills gained in field research, which forms an exciting part of the degree in your first and second year.

Students doing Zoology with Industrial or Professional Experience go on a variety of placements in their third year of study, including zoos, museums and wildlife charities. Finally, there are regular informal events – lectures, parties and trips – and a weekly electronic newsletter about all things zoological, which help give you a special group experience.

Year 1

You will gain a broad introduction to the life sciences, covering key concepts including genetics, molecular biology and biodiversity. You can undertake two field courses, including Marine Biology (Scotland) and Animal Behaviour (South Africa). This year also helps you hone the essential data-handling and laboratory skills required by all life scientists.

Year 2

You will begin to specialise; topics may include animal physiology, how animals develop from one cell into a complex adult organism, and how species evolve and the diversity of species produced by this process. You will also consider how animals interact with each other, and other types of organism, in the ecosystems they live in. During the Research Skills course unit, you will study biodiversity in the field, applying the techniques used by environmental consultants and field-based biologists. You will also undertake another field course in France, Ecuador, or Belize.

Final year

Final-year topics reflect the current hotspots of bioscience endeavour and the research interests of staff and are continually updated and replaced. There is currently a strong emphasis on animal behaviour; topics include biological clocks and the influence of actors such as evolution, hormones and neurobiology on animal behaviour. The highlight of the year is your independent, in-depth research project, which could be field-based or take place in the labs of one of our leading zoology researchers.

Karlina Ozolina
Zoology with Industrial/ Professional Experience

"During my placement year in Denmark, I did my own conservation physiology study on acclimation in cane toads. The results were considered interesting enough for my supervisor to ask me to do a presentation in a conference in Prague. Additionally, I had the chance to learn the newest techniques in animal physiology and meet some of the world's top scientists in this area of research."

Course units

The first year of all our degree courses is quite similar, and provides a 'shop window' including all of the major strands of life sciences. Alongside optional units that interest you, you will study broadly the same core of units regardless of the degree for which you have registered. This ensures you have a grounding in all the key biological concepts required for any Life Sciences degree and additionally gives you the knowledge and potential to change your degree course at the end of your first year. You also have the opportunity to study optional units in a range of subjects. A brief account of some of these units follows below.

In the second year of your degree, you will begin to specialise, taking units that are more specifically related to your chosen degree course. You will still have flexibility and choice, as there is scope for you to take optional units outside your core study.

In your final year, you will study a range of specialised units tailored to your degree course. These units are constantly updated to reflect the most up-to-date topics in life sciences and are informed by the research interests of our staff, therefore include a vast array of lecture-based units and seminar programmes, and a range of teaching and learning styles.

Year 1 course units

Introductory Chemistry

If you have not completed A-level Chemistry, this unit will provide you with an introduction to the basic principles of the subject – physical, organic and inorganic chemistry. Completion of the unit will provide you with a working knowledge of these principles, sufficient to recognise their involvement in biological processes.

Biochemistry

The Biochemistry unit aims to provide an understanding of the basic chemical properties of molecules that make life possible and a description of the key components of the cell and their biochemical interactions. You will learn about the processes that allow energy to be harvested from sunlight, converted and stored in food and released to drive biochemical reactions within cells.

Molecular Genetics

Molecular Genetics introduces you to the structure and function of the molecules, including DNA and RNA, which allow genes to be expressed and maintained from one generation to the next. You will also learn about genetic engineering, its application, and the ethical issues associated with its use.

From Molecules to Cells

From Molecules to Cells introduces molecular cell biology: the study of the interactions between molecules and systems in a cell. You will learn how cells function both individually and as part of a tissue or organism. You will study the processes that determine how and when a cell communicates, grows, interacts with its neighbours, divides and dies – and how these processes go awry during cancer.

Introduction to Laboratory Science

You will participate in ten practical sessions introducing the basic skills and techniques required for laboratory investigation. You will study the human cardiovascular and respiratory systems and work with other organisms, including plants and microbes. You will conduct research using DNA, proteins and other biomolecules.

course details

Introduction to Experimental Biology

You will develop your laboratory skills in this unit, learning widely used modern laboratory techniques, as well as techniques appropriate to your specialist degree course. This will prepare you for your more advanced practical sessions in your second year. You will have complementary training in statistical analysis and will undertake two of the following strands:

Strand 1 – Drugs and the Nervous System

Strand 2 – Molecular Genetics for Human Biologists

Strand 3 – Cells and Genes

Strand 4 – Organisms and the Environment

Strand 5 – Inside the Cell: from DNA to Protein

Biodiversity

Biodiversity outlines how complex life forms arose from simpler ones to produce the rich diversity of organisms found in ecosystems: from the smallest microbe, to large mammals and trees. You will learn that organisms should not be considered in isolation, as they team up with others, share resources, or compete with each other within their ecosystems.

Genes, Evolution and Development

This unit introduces you to the topic of heredity. You will discover how natural selection, also known as 'survival of the fittest', drives evolution. You will learn how the interaction of organisms with each other, and with their environment, influences the outcome of the evolutionary process. The relationship between development and evolution is also explored.

Microbes, Man and the Environment

Microbes, extremely diverse both in form and in function, play a critical role in the all ecosystems. You will explore how these organisms evolved from more primitive life forms to colonise new environmental niches. You will study their interactions with plants, animals and insects and how they impact on our everyday lives.

A History of Biology in 20 Objects

This unit takes a fresh approach to the history of the life sciences. Lectures are organised around 'objects': topics of inquiry, key organisms, or research tools. What are now everyday laboratory objects were once associated with exciting new developments and cutting-edge research; the reasons why these objects and approaches were adopted tells us a great deal about how biology works and how it has changed, and gives us some insight into how it may change again in the 21st century.

Body Systems

Body Systems introduces the concepts underpinning physiology and the major tissue types that form the structures of the body. You will examine the relationship between the cardiovascular and respiratory systems, learning how diseases of these systems can be interpreted in terms of altered physiology and anatomy.

Drugs: From Molecules to Man

This unit introduces pharmacology, the science of drugs: ie their preparation, properties, uses and effects. You will learn about the molecular interactions of drugs with their targets in the body, focusing on the actions of the drugs acting on the cardio respiratory system that treat conditions such as angina and asthma.

Excitable Cells

Excitable cells – cells that respond to stimuli by producing an electric current – are key to the function of our muscles and nervous system. You will learn about the structure and function of these cells, what makes them important and the techniques used to study them.

Marine Biology

This eight-day field course is held at the University Marine Biological Station at Millport, Isle of Cumbrae, Scotland. Working in small teams, you will examine plankton and organisms living on rocky shores, sandy shores and the seabed. You will investigate the effectiveness of standard ecological surveying methods.

Comparative and Adaptive Biology

This field course is a seven-day residential course held on the Spanish island of Majorca. You will learn about plants and animals native to the region and their physiological adaptations to the stresses experienced in the Mediterranean climate. Working in small teams, you will design and execute a research project.

Freshwater Biology

This eight-day field course is held at Lake Kastoria, Greece. You will gain an understanding of the structure and functioning of lake and river communities and how they can be damaged by human activities. Working in small teams, you will design and execute a field-based project.

Animal Behaviour

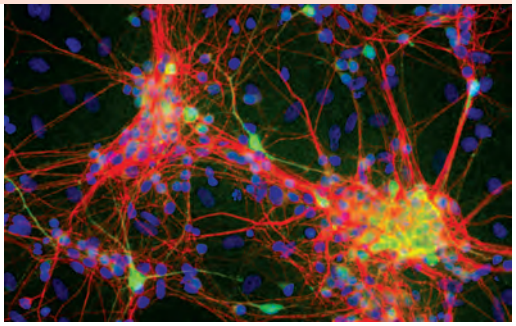
With the African savannah as a setting, this unit introduces adaptive animal behaviour in the natural environment. In small groups, you will design and conduct simple experiments on a wide variety of animals, from mammals and birds, to insects and complete a group project.

Science and the Modern world

Science has a central role in our cultural, economic and political life. You will reflect on the role of science in the past and in the present through the use of a variety of resources, including literature and film.

Jenna Legg
Biology

"South Africa was an unforgettable, once-in-a lifetime experience! I loved the hands-on aspect of conducting your own study in the field on animal behaviour and observing native African animals in their natural environment. As added extras, there were a trip to Pilanesberg National Park and a performance from native tribal dancers – both were fantastic!"



Technologies of Everyday Life

In this unit, you will explore the main technological changes that have affected everyday life since 1800. Using case studies of different technologies, including the infrastructure of Manchester and birth control technology, you will examine the impact of technology on modern society and culture.

Bodies in History: An Introduction to the History of Medicine, 1500-2000

Bodies in History provides an introduction to medicine in modern Western culture from 1500 to 2000. You will learn about the themes explored by historians of medicine, including class, race, gender and national identity. Areas of study include Renaissance Anatomy and Eugenics.

Years 2 and 3 course units

As the biosciences are developing so rapidly, we are constantly updating our units, so it would be unwise for us to predict what our portfolio might contain after your first year. For details of current second- and final-year units, see individual degree course details and the Faculty website:
www.manchester.ac.uk/lifesciences

careers

Career opportunities

Your time at university is an important investment in your future career potential and your ability to compete for the most desirable graduate jobs. Your employment prospects with a life sciences degree from The University of Manchester will be some of the best in the world. The combination of teaching methods and opportunities for employability skills development can really help you to develop the qualities that today's graduate employers seek.

The University's Careers Service regularly tops the polls amongst employers and students as the best in the UK. There is a wide range of services to take advantage of, from mentoring, work experience, career management workshops and one-to-one advice sessions, to the University's exciting Manchester Leadership Programme. In the last few years, our students have regularly featured amongst the most employable in the world.

Careers in the life sciences

Approximately half of our graduates enter employment directly connected to the life sciences. Many aspire to careers in research and therefore go on to study for a Masters degree, or a PhD, in specialist fields. A significant number also go on to study for further qualifications in vocational subjects, such as medicine, law, international business, or teaching. Our graduates choose to study at other universities around the world, or stay on here at Manchester. Other students go directly into life science roles after graduation.

Our graduates have gone on to work in the pharmaceutical and agrochemicals industries, in medical technology and in research institutes and government agencies. Popular roles include: clinical researcher, biochemist, research associate, clinical scientist and medical writer. Employers of our recent graduates have included AstraZeneca, GlaxoSmithKline, The Health Protection Agency and The National Health Service.

Careers outside the life sciences

Studying life sciences at Manchester provides excellent opportunities to develop skills that may transfer into a wide range of careers. These skills include effective communication, innovation, judgement and decision-making, organisation, problem-solving and teamwork. Such skills are highly sought after by graduate recruiters across all sectors.

Our graduates also go on to graduate training programmes across management, finance, marketing, law, media and the civil service (amongst others). Examples of companies that hired our students onto their renowned graduate schemes in recent years include: financial services organisations such as PricewaterhouseCoopers, investment bank JPMorgan, and household names such as Sony, John Lewis Partnership, BBC, Severn Trent Water and The Ministry of Defence.

For more details on career options, please see our website:
www.manchester.ac.uk/ls/undergraduate/careers

GRADUATE PROFILE

Emma Jolly
BSc (Hons) Biology

Graduated
2006

Role
Editorial Co-ordinator

Organisation
Springer (International Science, Technology and Medicine Publisher)

"The breadth of subjects I studied in my degree has been really useful, as a broad and sound understanding of biology is essential in my role – I need to be able to understand manuscripts that cover a wide range of therapeutic areas, from molecular biology through to clinical trials in thousands of patients. Skills in presentation and team work, which I developed during my tutorials, have helped me to be able to be able to present ideas confidently to clients and potential authors."

GRADUATE PROFILE

Dr Georgina Drury
BSc (Hons) Plant Science with Industrial Experience

Graduated
2004

Role
Post-doctoral researcher in Plant Genetics

Organisation
The University of Leeds

"The University of Manchester was the perfect place for my academic and personal development; by embracing my studies, as well as activities and societies within the Faculty, I have had the skill and confidence to successfully complete a PhD and obtain employment in an exciting field of research."

GRADUATE PROFILE

Ed Spencer
BSc (Hons) Biology

Graduated
2007

Role
Trainee Solicitor

Organisation
Taylor Wessing

"My biology degree definitely helps me both from a skills perspective and in understanding some of the cutting edge technologies with which many of our clients are involved. For my final year project I was involved in an Enterprise Project and the commercial awareness that I developed throughout that year helps me in presenting practical business solutions to the legal problems I face day-to-day. It was also a really good talking point for interviews as it really makes you stand out as having done something which proves your interests are wider than pure science.

Research is a big part of my job and my biology background means I not only have the skills needed for the task but I also have a different approach that comes from not having the more traditional law background, this means I can often find more discrete cases or law which is often the key to our client's dilemma."

foundation year

Life Sciences with a Foundation Year

Life Sciences with a Foundation Year is for you if you want to enter one of the degree courses offered by the Faculty of Life Sciences, but do not have the appropriate entry qualifications.

The Foundation Year provides the necessary academic background in biology, chemistry and mathematics to prepare you for study on any of our BSc (Hons) degree courses. Successful completion of the Foundation Year allows you direct entry into these degree courses, many of which are available as four-year degree courses. The extra year can be made up of a year of industrial or professional training, or a year abroad for a degree with a modern language. You can find out more about all these degree courses by looking at the relevant pages in this brochure.

Progression to your preferred course will require strengths in the relevant subject area, and some degree courses can require higher marks in certain subjects than others – eg Cognitive Neuroscience and Psychology, and Optometry.

Where you study

Xaverian College

Most of the Foundation Year is taught by the experienced staff of Xaverian College, which is located in the Victoria Park area, about 1km south of the University campus. Xavarian College was graded outstanding in its most recent Ofsted inspection.

The University campus

There is a complementary programme of tutorials, seminars and laboratory exercises at the main University campus. As a student on the Foundation Year, you are a full student member of The University of Manchester; you are guaranteed a place in a University hall of residence and you have full access to all The University of Manchester's facilities, including the University library, computer and learning resource centres, and the wide range of sporting and social activities available to all students

How you learn

The Foundation Year is credit-rated, consisting of a total of 120 academic credits. You study both the theoretical and practical side of a common core of units in biology, chemistry and mathematics.

Biology

Biology forms approximately half the core content and lectures cover a wide range of areas, including cell biology, biochemistry, genetics, biotechnology, microbes and disease, ecology and physiology. Regular laboratory work reinforces the subject material and helps you to develop practical skills. Opportunities are also available for fieldwork.

Chemistry

More than one-third of the core consists of chemistry, involving the study of atomic structure, bonding, rates of reaction, inorganic and physical chemistry, organic and medicinal chemistry. Lectures on these subjects are supported by relevant laboratory practicals

Mathematics

The units in mathematics enable you to manipulate and analyse experimental data accurately and to use statistical and mathematical techniques in a biological context. Study skills and help with the core content are provided through weekly tutorials.

How you are supported

In addition to academic tutorial support from staff at both Xaverian College and the University, you are allocated a personal tutor for pastoral support. Your tutor will be available for one-to-one meetings and will become well known to you.

How to apply

All applications should be made through UCAS.

Naomi Lowe-Lennon
Physiology

"All the staff at Xaverian were really enthusiastic and helpful and we had regular meetings with the Foundation Year tutor to make sure we were settling into university and coping with the course. I am much more focussed on my studies this year because I've had an extra year to get used to uni life and all the excitement that can bring. One of the great things when I started the first year was having so many friends on the course that I had made on the Foundation Year."

Steph Kenyon
Physiology

"The Foundation Year provided an excellent opportunity to ensure I was fully prepared for my degree course in Physiology. The year of study allowed me to learn some very useful skills and gave me the knowledge I needed to achieve success at degree level. The members of staff at Xaverian College were fantastic and were always there if and when support was needed. I would definitely do it all again if I had the chance."

Our University website holds a wealth of information on the many varied aspects of student life. Below are some of the most popular topics – use the web links for full details…

find out more

Accommodation

As long as you apply by our deadline, all first-year students holding an unconditional offer are guaranteed an offer of a place in university accommodation. For international students, this promise is extended to the full duration of your studies. We are proud to offer more spaces in university-managed accommodation than practically any other UK university.

Discover our diverse range of university accommodation, bustling student areas, halls of residence visits, private accommodation options and more:

www.manchester.ac.uk/accommodation
www.manchesterstudenthomes.com

Admissions and applications

We welcome applications from people of all backgrounds, and are fully committed to equality of opportunity. All applications for full-time undergraduate courses in higher education are coordinated by the Universities and Colleges Admissions Service (UCAS).You must apply online at www.ucas.com. If you are unable to access the internet, contact the UCAS Customer Service Unit on +44 (0)871 468 0468.

Find out more about the application process, policies, procedures and support:

www.manchester.ac.uk/ug/howtoapply

Careers Service

Our award-winning Careers Service will work in partnership with you throughout your degree to improve your employability and prepare you for the competitive jobs market. It will help you find part-time jobs, volunteering and work experience opportunities.

Since Manchester is one of the most targeted universities by graduate recruiters, you will meet many employers on campus. You might also take part in the unique Manchester Leadership Programme, to help you develop skills and boost your CV.

Find out more about careers events, mentoring programmes, accredited course units and a whole range of other services:

www.manchester.ac.uk/careers
www.manchester.ac.uk/mlp

Childcare

There are two centres associated with the University for children between six months and five years of age: Dryden Street Nursery and Echoes Nursery. Find out more about funding options, private nurseries, playgroups and schools:

www.manchester.ac.uk/studentnet/crucial-guide/personal-life/student-parents/student-parents

City of Manchester

One of the great benefits of being a student at Manchester is that all the joys of Britain's number one student city are right on your doorstep. You'll be spoilt for choice for food, drink, culture, music, history, nightlife, festivals, shopping, sport and much more – with the quiet countryside of two beautiful national parks also within easy reach when you want to get away from it all. Find out what one of our current students has to say about the capital of the North West:

www.manchester.ac.uk/ug/studentlife/sociallife/manchester

Disability support/applicants with additional support needs

We welcome applications from people with additional support needs and all such applications are considered on exactly the same academic grounds as other applications. If you have additional needs arising from a medical condition, a physical or sensory disability, or a specific learning disability, you are strongly encouraged to contact the University's DSO to discuss your needs, any arrangements that may be necessary and the extent to which appropriate support is available:

www.manchester.ac.uk/dso

Information is also available from the Students' Union Welfare Officer:

www.umsu.manchester.ac.uk

Funding and finance

The University of Manchester will charge a headline fee of £9,000 per year to UK and EU undergraduates from September 2012, following changes to university tuition fees approved by Parliament in 2010. This fee will enable the University to maintain the quality of a Manchester degree, invest in the wider student experience and offer a range of bursaries and discounts for students from less well-off backgrounds.

However, more than one-third of all students who successfully apply to study here will receive bursaries of up to £3,000 per year – and many will be offered even more generous support. Students who are eligible will be able to choose how they receive this support – either as a cash bursary, or as a discount on their fees or accommodation bill.

For the most up-to-date details, including information on our proposed bursaries, scholarships and fee discounts, see our website:

www.manchester.ac.uk/studentfinance

International students

The University is a multicultural environment and home to more than 9,500 international students from around 160 countries. A range of services is available for international students, to help you both before and during your studies. This includes an airport collection service, orientation courses and specialist student advisers.

Find out more, including information specific to students from your country, such as entry requirements and useful contacts:

www.manchester.ac.uk/international

IT services

As a student at Manchester, you will have access to a huge range of up-to-date IT services, including: online and mobile learning, PC clusters with a wide range of software, extensive WiFi networks, halls of residence internet service, email and technical help and support.

www.manchester.ac.uk/its

Library

The John Rylands University Library (JRUL) is one of the best-resourced academic libraries in the UK and is widely recognised as one of the world's great research libraries, with diverse special collections and electronic resources unrivalled within UK universities.

In 2009, the Main Library underwent a large-scale refurbishment to the ground floor, improving access both to the building and to the collections and also introducing new social and learning spaces to cater for a range of learning styles.

Find out more about the information services and resources available to you:

www.manchester.ac.uk/library

Maps

Get to grips with your future home and take a closer look at our campus, the city and University accommodation by viewing our maps:

www.manchester.ac.uk/aboutus/travel/maps

Prospectus

Our 2012 undergraduate prospectus offers a comprehensive overview of The University of Manchester. You can view a copy online:

www.manchester.ac.uk/ug/courses/prospectus

Religious support

There are two chaplaincy centres for the major Christian churches. St Peter's House provides chaplains for the Anglican, Baptist, Methodist and United Reformed Churches, while the Roman Catholic Chaplaincy is at Avila House. Hillel House provides facilities for Jewish worship. There are prayer facilities on campus for Muslim students and student societies for many religions.

Sport

We have an exciting sport and fitness scene with something for everyone at every level, from complete beginner to high performance athlete. Discover more than 40 sports clubs; a vibrant 'Campus Sport' programme, allowing you to play in friendly, recreational leagues; a huge variety of health and fitness classes; plus sport volunteering and scholarship opportunities.

Find out more about our superb sport facilities and opportunities to get active in Manchester:

www.manchester.ac.uk/sport

Student support

Whatever the issue – financial, academic, personal, or administrative – we have experienced and sympathetic people, support groups and advice centres to help you. Find out about counselling, academic advice and various other student support services:

www.manchester.ac.uk/studentnet/crucial-guide

Students' Union

The University of Manchester Students' Union (UMSU) is the largest Students' Union in Europe, offering everything from live bands to welfare advice, cheap stationery to student representation. UMSU has some of the largest and most active student societies in the country, as well as support and welfare services, student media, shops and bars and the famous Manchester Academy. Have a look at the SU website:

www.umsu.manchester.ac.uk

Video library

Watch and listen to our students and staff introducing various aspects of student life and The University of Manchester with our selection of online videos:

www.manchester.ac.uk/aboutus/video

contact details

For further information about the courses, or about qualifications, contact:

admissions office
Faculty of Life Sciences
G483 Stopford Building
The University of Manchester
Oxford Road
Manchester
M13 9PT
United Kingdom

tel +44 (0)161 275 5032
fax +44 (0)161 275 5456
email ug-lifesciences@manchester.ac.uk

For the most up-to-date course information, visit our website:
www.manchester.ac.uk/lifesciences

Disclaimer

This brochure is prepared well in advance of the academic year to which it relates. Consequently, details of courses may vary with staff changes. The University therefore reserves the right to make such alterations to courses as are found to be necessary. If the University makes an offer of a place, it is essential that you are aware of the current terms on which the offer is based. If you are in any doubt, please feel free to ask for confirmation of the precise position for the year in question, before you accept the offer.

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