Biological Sciences
“Edinburgh isn’t so much a city, more a way of life … I doubt I’ll ever tire of exploring Edinburgh, on foot or in print.”

Ian Rankin
Best-selling author and alumnus
Influencing the world since 1583

For more than 400 years the University of Edinburgh has been changing the world. Our staff and students have explored space, won Nobel Prizes and revolutionised surgery. They’ve published era-defining books, run the country, made life-saving breakthroughs and laid the foundations to solve the mysteries of the universe.

Our distinguished alumni include NASA astronaut Piers Sellers, former M15 Director-General Dame Stella Rimington, Olympians Sir Chris Hoy and Dame Katherine Grainger, and historical greats such as philosopher David Hume, suffragist Chrystal Macmillan, who founded the Women’s International League for Peace and Freedom, and physicist and mathematician James Clerk Maxwell.

International collaboration
An internationally renowned centre for academic excellence, we forge world-class collaborations with partners such as the California Institute of Technology (Caltech), Stanford University, the University of Melbourne, Peking University, the University of Delhi and the University of KwaZulu-Natal. As a member of the League of European Research Universities and the Coimbra Group, we link up with leading institutions across Europe.

Linking research and commerce
We were one of the first UK universities to develop commercial links with industry, government and the professions. Edinburgh Innovations promotes and commercialises our research excellence and can assist you in taking the first step to market, through collaborative research, licensing technology or consultancy.

Enhancing your career
We are committed to embedding employability in your University experience and have an impressive track record for graduate employment. From volunteering schemes to our sector-leading careers service, we provide you with opportunities to develop your skills, knowledge and experience, giving you an edge in the competitive job market.

TOP 50
We’re consistently ranked one of the top 50 universities in the world. We’re 20th in the 2020 QS World University Rankings.

4TH
We’re ranked fourth in the UK for research power, based on the 2014 Research Excellence Framework.*

83%
The majority of our research – 83 per cent – is considered world leading or internationally excellent.*

TOP 100
We are ranked in the top 10 in the UK and in the top 100 in the world for the employability of our graduates.†

£403m
In 2017/18 we won £403 million in competitive research grants.

19
There are 19 Nobel Prize winners who are alumni of the University or have been members of academic staff here.

22ND
We’re ranked 22nd in the world’s most international universities.‡ Since 2010, we have taught students from more than 160 countries.

* Times Higher Education, Overall Ranking of Institutions
† Times Higher Education, Global Employability University Ranking 2018
‡ Times Higher Education, The World’s Most International Universities 2019
Taught masters programmes

Our taught masters programmes are designed to deepen knowledge in a subject you will typically have studied at undergraduate level, although they can also offer a new direction in your academic career.

MSc and Diploma

Our taught Master of Science (MSc) programmes last 12 months, consisting of two semesters of taught courses followed by an academic career.

Our taught Master of Science (MSc) programmes last 12 months, consisting of the taught courses only.

MSc 1 yr FT (2 yrs FT available for UK/EU students)
PgDip 9 mths FT

Programme description

The revolution in genetic mapping technology and the advent of whole genome sequences have turned quantitative genetics into one of the fastest growing areas of biology.

Based in the internationally renowned Institute of Evolutionary Biology, this MSc draws from the wealth of expertise available there, as well as the teaching, research expertise and facilities of Scotland’s Rural College, the University's Centre for Genomics and Experimental Medicine, the Medical Research Council’s Human Genetics Unit and the Roslin Institute (Birthplace of Dolly the sheep).

Each year the syllabus is fine-tuned to suit current issues in evolutionary, plant, human and animal genetics. This programme forms part of the quantitative genetics and genome analysis suite of programmes (see page 9), which includes the specialist routes Human Complex Trait Genetics and Evolutionary Genetics.

Programme structure

This programme consists of two semesters of taught courses followed by a research project, leading to a dissertation. Courses are taught via lectures, tutorials, seminars and computer practicals. Assessment is by written examinations, in-course assignments and project work.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
Animal Genetic Improvement; Dissertation; Genetic Interpretation; Linkage and Association in Genome Analysis; Population and Quantitative Genetics; Quantitative Genetic Models; Research Proposal; Statistics and Data Analysis.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
Introduction to Bioinformatics for Life Scientists; Evolutionary Quantitative Genetics; Functional Genomic Technologies; Genetics of Human Complex Traits; Molecular Evolution; Molecular Phylogenetics.

Career opportunities

You will develop the in-depth knowledge and specialised skills required to contribute to the quantitative theory to practical problems, in both the biomedical and animal science industries, and to undertake research in evolutionary genetics, population genetics and genome analysis.

Entry requirements

A UK 2.1 honours degree, or its international equivalent (www.ed.ac.uk/international/graduate-entry), in biological or biomedical sciences, medicine, agriculture or animal sciences, or a degree in mathematics, statistics, or physics from applicants intending to transfer into the biological sciences. We will also consider your application if you have less than the minimum qualification but can show sufficient additional relevant experience such as significant work history in a related discipline. Your application must show evidence of an interest in genetics alongside quantitative skills.

English language requirements

See page 20. For fees see page 20 and for funding information see page 22.

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www.ed.ac.uk/pg/763

Animal Breeding & Genetics

Biochemistry

MSc 1 yr FT
PgDip 9 mths FT

Programme description

This programme offers you an academically-challenging and career-developing study of biological systems at the molecular and cellular level. Biochemistry is fundamental to most areas of the science: it has a major impact on modern medical research and is essential in the pharmaceutical, nutritional, forensic, bioengineering, agricultural and environmental industries. The programme is designed to produce highly skilled and motivated biochemists who are suitable for employment in the pharmaceutical industry, research institutions, consumer laboratories and environmental agencies.

Based in the internationally renowned Institute of Evolutionary Biology, this MSc draws from the wealth of expertise available there, as well as the teaching, research expertise and facilities of Scotland’s Rural College, the University’s Centre for Genomics and Experimental Medicine, the Medical Research Council’s Human Genetics Unit and the Roslin Institute (Birthplace of Dolly the sheep).

Each year the syllabus is fine-tuned to suit current issues in evolutionary, plant, human and animal genetics. This programme forms part of the quantitative genetics and genome analysis suite of programmes (see page 9), which includes the specialist routes Human Complex Trait Genetics and Evolutionary Genetics.

Programme structure

This programme consists of two semesters of taught courses followed by a research project, leading to a dissertation. Courses are taught via lectures, tutorials, seminars and computer practicals. Assessment is by written examinations, in-course assignments and project work.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
Biochemistry A and B; Biophysical Chemistry; MSc Project & Dissertation; Practical Skills in Biochemistry A and B; Research Project Proposal.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
Applicable Mathematics; Applications of Synthetic Biology; Introduction to Bioinformatics for Life Scientists; Biomacromolecules; Commercial Aspects of Drug Discovery; Detailed Characterisation of Drug or Ligand Interactions using NMR; Drug Discovery; Economics and Innovation in the Biotechnology Industry; Functional Genomic Technologies; Information Processing in Biological Cells; Molecular Modelling and Database Mining; Preparative Methods for Structural Biology; Programming for the Life Sciences; Protein Structure Determination; Quantitative Drug Binding; Tools for Synthetic Biology; Vaccines and Molecular Therapies.

Research

Students progressing to MSc level will carry out their own research project at the forefront of knowledge and can make a genuine contribution to the progress of original research. This also involves reviewing relevant papers, analysing data, writing a dissertation and giving a presentation.

Career opportunities

You will enhance your career prospects by acquiring knowledge of contemporary biochemistry from world experts in the field, by being trained in advanced analytical and presentation skills, and by having independent research experience in a modern, world-class laboratory.

Entry requirements

A UK 2.1 honours degree, or its international equivalent (www.ed.ac.uk/international/graduate-entry), in biological or environmental science.

Relevant work experience is desirable.

English language requirements

See page 20. For fees see page 20 and for funding information see page 22.

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Biodiversity & Taxonomy

of Plants

MSc 1 yr FT
PgDip 9 mths FT

Programme description

The understanding of plant diversity and resources has never been more important. As we face the urgency of biological challenges of climate change and environmental degradation, effective environmental surveillance and conservation depend upon detailed knowledge of plants and their habitats.

This programme is run jointly by the University and the world-renowned Royal Botanic Garden Edinburgh (RBGE), which is home to one of the world’s largest living collections of plants (15,000 species across four sites, amounting to over five per cent of known world species), a herbarium of three million preserved specimens and one of the UK’s most comprehensive botanical libraries.

RBGE offers collections-based biodiversity research opportunities across a wide spectrum of organisms and geographical regions. This diversity, coupled with RBGE’s world-leading research in different continents, provides an unrivalled masters programme in plant biodiversity.

Programme structure

This programme is full time and consists of two semesters of lectures, practicals, workshops and investigations, followed by a four-month research project. The programme includes a two-week field course in a tropical country. The programme is delivered mainly at RBGE but also at the University’s King’s Buildings campus. There are no option elements to the programme – all courses are compulsory.

COURSES PREVIOUSLY OFFERED INCLUDE:
Biodiversity of Angiosperms; Conservation and Sustainability; Evolution and Biodiversity of Cryptogams; Evolution of Plants; Phylogenetics and Population Genetics; Plant Genome Diversity; Plant Geography; Project and Dissertation; Taxonomy & Plant Collections; Tropical Biodiversity Field Course.

Research

Your research project will be chosen in consultation with your supervisor, and will link directly with active research programmes at RBGE or other research institutions. The field trip, together with training and a short practical exam, qualifies you for the RBGE Certificate in Practical Field Botany.

Career opportunities

The programme is good preparation for roles in taxonomy, while many graduates have also continued to PhD or other research roles at universities internationally. Recent graduates have entered a wide variety of jobs, including ecologist, plant scientist, plant surveyor, environmental officer and plant health inspector for research institutions, conservation agencies and other employers, such as Kew Gardens, the Royal Botanic Garden Edinburgh, Corrour Estate and Scottish Natural Heritage.

Entry requirements

A UK 2:1 honours degree, or its international equivalent (www.ed.ac.uk/international/graduate-entry), in biological or environmental science.

Relevant work experience is desirable.

English language requirements

See page 20. For fees see page 20 and for funding information see page 22.

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www.ed.ac.uk/pg/1

Fees and funding

For fees see page 20 and for funding information see page 22.
**Bioinformatics**

**Programme description**
Bioinformatics is about the application of computer-based approaches to understanding biological processes. Our programme will introduce you to the current methods used to interpret the vast amounts of data generated by modern high-throughput technologies. The aim of this MSc is to equip you with a strong background in biology, and the computing skills and knowledge necessary to navigate the vast wealth of modern biological data. On completing this programme you will be in a good position to undertake PhD studies or bioinformatics posts in academia or in industry. The programme covers programming skills, statistical analysis and database science as well as bioinformatics. Option courses allow you to specialise in several aspects of bioinformatics.

**Programme structure**
The MSc comprises two semesters of taught courses followed by a research project and dissertation. The project is a key element in deciding how your career in bioinformatics should develop further. Teaching is through lectures, tutorials, seminars, computer practicals and laboratory demonstrations.

**COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:**
- Bioinformatics Programming & System Management
- Bioinformatics Research Proposal
- MSc Dissertation (Bioinformatics)
- Statistics & Data Analysis

**OPTION COURSES PREVIOUSLY OFFERED INCLUDE:**
- Bioinformatics 1, Bioinformatics 2
- Bioinformatics Algorithms; Comparative and Evolutionary Genomics; Drug Discovery; Functional Genomic Technologies; Information Processing In Biological Cells
- Introduction to Practical Programming With Objects; Introduction to Website and Database Design for Drug Discovery; Molecular Modelling and Database Mining; Molecular Phylogenetics; Next Generation Genomics; Practical Systems Biology; Quantifying Drug Binding; Software Architecture, Process and Management; Software Development

**Research**
The research project is carried out independently, but under the guidance of a supervisor, during the summer, with results presented in a dissertation. A wide range of projects is available through both the School of Biological Sciences and the School of Informatics.

**Career opportunities**
The programme is good preparation for further academic research or for technical or managerial roles in various commercial sectors, including medical electronics, life sciences and defence. Recent graduates are now working as bioinformaticians, software developers, data analysts and system testers.

**Entry requirements**
A UK 2:1 honours degree, or its international equivalent (www.ed.ac.uk/international/graduate-entry), in biological sciences. You must have a strong background in molecular biology, biochemistry or related sciences and some experience of computer science or mathematics. We will also consider your application if you have a background in chemistry, physics, mathematics or engineering.

**English language requirements**
See page 20.

**Fees and funding**
For fees see page 20 and for funding information see page 22.

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**Biotechnology**

**Programme description**
Changing demographics and growing demand for food, fuel and agricultural and environmental sustainability are among the key challenges the world faces today. In this MSc you will learn research and development skills to enable the creation of new products and services. You will investigate the economic basis for current biotechnology structures and areas of future demand, including the global pharmaceutical industry and carbon sequestration. You will learn how technology can be applied to solve pressing real-world biological problems and gain the skills and expertise needed for future developments in biotechnology.

**Programme structure**
This programme consists of two semesters of taught courses followed by a research project or industrial placement, leading to a dissertation.

**COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:**
- Economics and Innovation in the Biotechnology Industry
- Intelligent Agriculture: Research Project Proposal; Research Project or an Industrial Placement

In addition, you will take either Principles of Industrial Biotechnology or Metagenomic Analysis of Microbial Communities.

**OPTION COURSES PREVIOUSLY OFFERED INCLUDE:**
- Applications of Synthetic Biology: Automation and Industry; Biosimulais; Biochemistry A and B; Biodesign; Introduction to Bioinformatics for Life Scientists; Bioinformatics Programming & System Management; Commercial Aspects of Drug Discovery; Drug Discovery; Drugmetabolism and Biological Production; Gene Expression and Microbial Regulation; Industry & Entrepreneurship in Biotechnology; Innovation-Driven Entrepreneurships; Molecular Modelling and Database Mining; Origins of Synthetic Biology; Practical Skills in Biochemistry A and B; Programming for the Life Sciences; Social Dimensions of Systems and Synthetic Biology; Stem Cells and Regenerative Medicine; Tools for Synthetic Biology; Vaccines and Molecular Therapies

**Research and laboratory work**
There will be a considerable practical element to the programme. You will work in a biotechnology laboratory and learn how experimental technology is designed and operated.

**Career opportunities**
The programme will open up a wide variety of career opportunities, ranging from sales and marketing, to research and development, to manufacturing and quality control and assurance. The programme will also prepare you for further study on a PhD programme. Recent graduates have found work as biologists, development scientists and researchers for employers including Renshaw Diagnostics, Aridica Informatics, the Ministry of Food, Agriculture and Livestock, and universities internationally.

**Entry requirements**
A UK 2:1 honours degree, or its international equivalent (www.ed.ac.uk/international/graduate-entry), in biotechnology, biochemistry, molecular biology, genetics, plant sciences or related sciences.

**English language requirements**
See page 20.

**Fees and funding**
For fees see page 20 and for funding information see page 22.

**Programme Director**
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Drug Discovery & Translational Biology

MSc 1 yr FT
PgDip 9 mths FT

Programme description
The rapid transformation in the nature of drug discovery means that knowledge and skills in all of the disciplines used, is essential for those considering a career in commercial or academic research. This MSc will help you explore the latest methods of developing drugs and therapeutic compounds for humans and animals and disease control agents for plants. You will learn about marketing, licensing and regulations, which are all part of the development process.

Our multidisciplinary approach links structural biology, bioinformatics, chemistry and pharmacy. You will investigate the fundamental scientific problems and techniques of drug discovery and design, alongside the challenges of development strategies for new therapeutic strategies. You will have hands on experience of crystallographic computer programming and computation for bioinformatics. You will consider the moral and ethical aspects of the agri-chemical and pharmaceutical industries through case studies, seminars and discussions.

Programme structure
This programme consists of two semesters of taught courses followed by a research project, leading to a dissertation.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
- Applicable Mathematics: Commercial Aspects of Drug Discovery
- Dissertation: Drug Discovery: Molecular Modelling and Database Mining
- Preparative Methods for Structural Biology: Project Proposal and Literature Review
- Protein Structure Determination: Quantifying Drug Binding

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
- Bioassays: Biochemistry A and B: Bioinformatics 1; Bioinformatics 2; Bioinformatics Algorithms: Bioinformatics Programming & System Management
- Biophysical Chemistry for MSc Biochemistry
- Chemical Medicine: Detailed Characterisation of Drug or Interactions; Using Surface Plasmon Resonance (SPR); Functional Genomic Technologies: Information Processing in Biological Cells; Introduction to Scientific Programming; Introduction to Web and Database Design
- Drug Discovery: Practical Skills in Biochemistry A and B; Preparative Methods for Structural Biology Laboratory Experience; Tools for Synthetic Biology

Career opportunities
This MSc is designed to help you pursue a career in the pharmaceutical industry or relevant graduate programmes in science, and it will provide a good background for managerial or technical roles in research, design and development. It is also a solid basis from which to continue your studies to PhD level. Recent graduates have found roles in healthcare, research and new drug screening, for a range of pharmaceutical companies.

Entry requirements
A 2:1 honours degree, or its international equivalent (www.ed.ac.uk/internationalgraduate-entry), in biology or biotechnological sciences, medicine, agriculture, or animal sciences, or a degree in mathematics, statistics, or physics from applicants intending to transfer into the biological sciences. We will also consider your application if you have less than the minimum qualification but can show sufficient additional subject experience such as significant work history in a related discipline.

Programme Director: Dr Jacob Moorad
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Evolutionary Genetics

MSc 1 yr FT (2 yrs PT available for UK/EU students)
PgDip 9 mths FT

Programme description
The revolution in genetic mapping technology and the advent of whole genome sequences have turned quantitative genetics into one of the fastest growing areas of biology.

Based in the internationally renowned Institute of Evolutionary Biology, this MSc draws from the wealth of expertise available there, as well as the teaching, research expertise and facilities of Scotland’s Rural College, the University’s Centre for Molecular Medicine, the Medical Research Council’s Human Genetics Unit and the Roslin Institute (birthplace of Dolly the sheep).

Each year the syllabus is fine-tuned to suit current issues in evolutionary, plant, human and animal genetics. This programme forms part of the quantitative genetics and genome analysis suite of programmes (see page 16), which includes the specialist routes Animal Breeding & Genetics, and Human Complex Trait Genetics.

Programme structure
This programme consists of two semesters of taught courses followed by a research project, leading to a dissertation. Courses are taught via lectures, tutorials, seminars and computer practicals. Assessment is by written examinations, coursework assignments and project work.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
- Dissertation: Genetic Interpretation: Linkage and Association in Genome Analysis; Population and Quantitative Genetics; Quantitative Genetic Models; Research Proposal; Statistics and Data Analysis

In addition, you will take either Evolutionary Quantitative Genetics, or Molecular Evolution and Molecular Phylogenetics.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
- Animal Genetic Improvement: Evolutionary Quantitative Genetics; Functional Genomic Techniques: Genetics of Human Complex Traits; Introduction to Genomics for Life Scientists: Molecular Evolution: Molecular Phylogenetics

Career opportunities
You will develop the in-depth knowledge and specialised skills required to apply quantitative genetics theory to practical problems, in both the biomedical and animal science industries, and to undertake research in evolutionary genetics, population genetics and genome analysis.

Entry requirements
A 2:1 honours degree, or its international equivalent (www.ed.ac.uk/internationalgraduate-entry), in biological or biotechnological sciences, medicine, agriculture, or animal sciences, or a degree in mathematics, statistics, or physics from applicants intending to transfer into the biological sciences. We will also consider your application if you have less than the minimum qualification but can show sufficient additional relevant experience such as significant work history in a related discipline. Your application must show evidence of an interest in genetics alongside quantitative skills.

English language requirements
See page 20.

Fees and funding
For fees see page 20 and for funding information see page 22.

Programme Director: Dr Jacob Moorad
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Human Complex Trait Genetics

MSc 1 yr FT (2 yrs PT available for UK/EU students)
PgDip 9 mths FT

Programme description
The revolution in genetic mapping technology and the advent of whole genome sequences have turned quantitative genetics into one of the fastest growing areas of biology.

Based in the internationally-renowned Institute of Evolutionary Biology, this MSc draws from the wealth of expertise available there, as well as the teaching, research expertise and facilities of Scotland’s Rural College, the University’s Centre for Molecular Medicine, the Medical Research Council’s Human Genetics Unit and the Roslin Institute (birthplace of Dolly the sheep).

Each year the syllabus is fine-tuned to suit current issues in evolutionary, plant, human and animal genetics. This programme forms part of the quantitative genetics and genome analysis suite of programmes (see page 21), which includes the specialist routes Animal Breeding & Genetics and Evolutionary Genetics.

Programme structure
This programme consists of two semesters of taught courses followed by a research project, leading to a dissertation. Courses are taught via lectures, tutorials, seminars and computer practicals. Assessment is by written examinations, coursework assignments and project work.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
- Dissertation: Genetic Interpretation: Linkage and Association in Genome Analysis; Population and Quantitative Genetics; Quantitative Genetic Models; Research Proposal; Statistics and Data Analysis

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
- Animal Genetic Improvement: Evolutionary Quantitative Genetics; Functional Genomic Techniques: Genetics of Human Complex Traits; Introduction to Genomics for Life Scientists: Molecular Evolution: Molecular Phylogenetics

Career opportunities
You will develop the in-depth knowledge and specialised skills required to apply quantitative genetics theory to practical problems, in both the biomedical and animal science industries, and to undertake research in evolutionary genetics, population genetics and genome analysis.

Entry requirements
A 2:1 honours degree, or its international equivalent (www.ed.ac.uk/internationalgraduate-entry), in biological or biotechnological sciences, medicine, agriculture, or animal sciences, or a degree in mathematics, statistics, or physics from applicants intending to transfer into the biological sciences. We will also consider your application if you have less than the minimum qualification but can show sufficient additional relevant experience such as significant work history in a related discipline. Your application must show evidence of an interest in genetics alongside quantitative skills.

English language requirements
See page 20.

Fees and funding
For fees see page 20 and for funding information see page 22.

Programme Director: Dr Jacob Moorad
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Quantitative Genetics & Genome Analysis

MSc 1 yr FT (2 yrs PT available for UK/EU students)
PgDip 9 mths FT

Programme description
The revolution in genetic mapping technology and the advent of whole genome sequences have turned quantitative genetics into one of the fastest growing areas of biology.

Based in the internationally-renowned Institute of Evolutionary Biology, this MSc draws from the wealth of expertise available there, as well as the teaching, research expertise and facilities of Scotland’s Rural College, the University’s Centre for Molecular Medicine, the Medical Research Council’s Human Genetics Unit and the Roslin Institute (birthplace of Dolly the sheep).

Each year the syllabus is fine-tuned to suit current issues in evolutionary, plant, human and animal genetics. This MSc is one of a suite of programmes offering specialist routes in genetics. The other programmes are Animal Breeding & Genetics, Evolutionary Genetics, and Human Complex Trait Genetics. If you already have a preferred programme option, you can apply to that specific programme. Applicants who wish to select an area of specialisation during the programme should apply for this umbrella programme.

Programme structure
This programme consists of two semesters of taught courses followed by a research project, leading to a dissertation.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
- Dissertation: Genetic Interpretation: Linkage and Association in Genome Analysis; Population and Quantitative Genetics; Quantitative Genetic Models; Research Proposal; Statistics and Data Analysis

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
- Animal Genetic Improvement: Evolutionary Quantitative Genetics; Functional Genomic Techniques: Genetics of Human Complex Traits; Introduction to Genomics for Life Scientists: Molecular Evolution: Molecular Phylogenetics

Career opportunities
You will develop the in-depth knowledge and specialised skills required to apply quantitative genetics theory to practical problems, in both the biomedical and animal science industries, and to undertake research in evolutionary genetics, population genetics and genome analysis.

Entry requirements
A 2:1 honours degree, or its international equivalent (www.ed.ac.uk/internationalgraduate-entry), in biological or biotechnological sciences, medicine, agriculture, or animal sciences, or a degree in mathematics, statistics, or physics from applicants intending to transfer into the biological sciences. We will also consider your application if you have less than the minimum qualification but can show sufficient additional relevant experience such as significant work history in a related discipline. Your application must show evidence of an interest in genetics alongside quantitative skills.

English language requirements
See page 20.

Fees and funding
For fees see page 20 and for funding information see page 22.

Programme Director: Dr Jacob Moorad
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Synthetic Biology & Biotechnology

Programme description
This academically challenging and career-developing programme focuses on research and development using biological and chemical principles and systems to create new products, services and industries. You will employ elements of the developing field of synthetic biology to bring about significant changes and major innovations that address the challenges of rapidly changing human demographics, resource shortages, energy economy transition and the concomitant growth in demand for more and healthier food, sustainable fuel cycles and a cleaner environment.

Programme structure
You will learn through a variety of activities, including lectures, workshops, presentations, laboratory work, field tutorials, seminars, discussion groups, project groups and problem-based learning activities. You will also attend problem-based tutorial sessions and one-to-one meetings. You will carry out research at the frontier of knowledge and make a genuine contribution to the progress of original research. This involves project work in a research laboratory, reviewing relevant papers, analysing data, writing reports and giving presentations.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
- Applications of Synthetic Biology: MSc Project and Dissertation; Research Proposal; Social Dimensions of Systems & Synthetic Biology; Tools for Synthetic Biology. In addition, you will take one of Automation and Industry; Principles of Industrial Biotechnology; Metagenomic Analysis of Microbial Communities; or Practical Skills in Biochemistry A.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
- BioBusiness; Biochemistry A and B; Biodesign; Bioinformatics 1; Bioinformatics Programming & System Management; Biophysical Chemistry; Commercial Aspects of Drug Discovery; Comparative & Evolutionary Genomics; Drug Discovery; Economics & Innovation in the Biotechnology Industry; Enzymology & Biological Production; Functional Genomic Technologies; Gene Expression & Microbial Regulation; Industry & Entrepreneurship; Information Processing in Biological Cells; Innovation-driven Entrepreneurship; Introduction to Scientific Programming; Molecular Modelling & Database Mining; Next Generation Genomics; Practical Skills in Biochemistry B; Practical Systems Biology; Stem Cells & Regenerative Medicine; The Origins of Synthetic Biology; Programming for the Life Sciences.

Career opportunities
You will enhance your career prospects by acquiring current, marketable knowledge and developing advanced analytical and presentational skills within the social and intellectual sphere of a leading international university. The School of Biological Sciences offers a research-rich environment in which you can develop as a scientist and entrepreneur.

Entry requirements
A UK 2:1 honours degree or its international equivalent (www.ed.ac.uk/international/graduate-entry). You should have a strong background in one or more of the following areas: biotechnology, biochemistry, molecular biology and related sciences. We may also consider your application if you have a background in engineering (particularly bioengineering), physics or mathematics.

English language requirements
See page 20.

Fees and funding
For fees see page 20 and for funding information see page 22.

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Systems & Synthetic Biology

Programme description
We offer an opportunity to train in one of the newest areas of biology: the application of engineering principles to the understanding and design of biological networks. This new approach promises solutions to some of today’s most pressing challenges in environmental protection, human health and energy production. This MSc will provide you with a thorough knowledge of the primary design principles and biotechnology tools being developed in systems and synthetic biology, ranging from understanding genome-wide data to designing and synthesising BioBricks. You will learn quantitative methods of modelling and data analysis to inform and design new hypotheses based on experimental data. The University’s SynthSys centre is a hub for world-leading research in both systems and synthetic biology.

Programme structure
The programme consists of two semesters of taught courses followed by a research project and dissertation, which can be either modelling based or laboratory based.

COMPULSORY COURSES PREVIOUSLY OFFERED INCLUDE:
- Biotechnology; Biochemistry A; Biodesign; Bioinformatics Algorithms; Bioinformatics Programming & System Management; Biological Physics; Computational Cognitive Neuroscience; Drug Discovery; Economics & Innovation in the Biotechnology Industry; Enzymology and Biological Production; Metagenomic Analysis of Microbial Communities; Functional Genomic Technologies; Gene Expression & Microbial Regulation; Industry & Entrepreneurship in Biotechnology; Introduction to Scientific Programming; Mathematical Biology; Molecular Phylogenetics; Neural Computation; Next Generation Genomics; Practical Skills in Biotechnology A; Probabilistic Modelling and Reasoning; Statistics and Data Analysis; Stem Cells & Regenerative Medicine.

OPTION COURSES PREVIOUSLY OFFERED INCLUDE:
- Biobusiness; Bioinformatics Programming & System Management; Biological Physics; Computational Cognitive Neuroscience; Drug Discovery; Economics & Innovation in the Biotechnology Industry; Enzymology and Biological Production; Functional Genomic Technologies; Gene Expression & Microbial Regulation; Industry & Entrepreneurship in Biotechnology; Introduction to Scientific Programming; Mathematical Biology; Molecular Phylogenetics; Neural Computation; Next Generation Genomics; Practical Skills in Biotechnology A; Probabilistic Modelling and Reasoning; Statistics and Data Analysis; Stem Cells & Regenerative Medicine.

Career opportunities
The programme is designed to give you a good basis for managerial or technical roles in the pharmaceutical and biotechnology industries. It will also prepare you for entry into a PhD programme.

Entry requirements
A UK 2:1 honours degree, or its international equivalent (www.ed.ac.uk/international/graduate-entry), with a strong background in one or more of the following areas: bioinformatics, computer sciences and modelling, molecular biology and related sciences, engineering or biotechnology. We may also consider your application if you have a background in physics or mathematics.

English language requirements
See page 20.

Fees and funding
For fees see page 20 and for funding information see page 22.

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Research at the School of Biological Sciences

We're one of the largest and most highly rated centres of our kind in the UK and one of the top 25 worldwide for biological sciences (QS World University Rankings by Subject 2019).

With 91 per cent of our biological sciences research rated either 4* world leading or 3* internationally excellent on the overall quality profile of the Research Excellence Framework (REF) 2014, and with a successful record of research grant applications, we can offer an environment that boasts cutting edge equipment and facilities to encourage research excellence and innovation. You’ll be part of an active Graduate School and will benefit from the support of around 130 principal investigators, many of whom hold independent personal fellowships funded by prestigious bodies. Through our innovative skills database, you’ll have access to a broad range of expertise within our comprehensive research areas, the output of which was ranked third in the UK for research quality (Research Fortnight REF 2014).

Research routes
Our six discipline-based research institutes cover biology from molecular structure to evolutionary and population biology.

PhD
As a PhD candidate you pursue a research project under continuous guidance, resulting in a thesis that makes an original contribution to the sector. You will gain specialist background knowledge for your intended research and develop the skills to research in that field. You will be required to submit your thesis within four years.

MPhil
The Master of Philosophy (MPhil) resembles a PhD but generally takes two years and does not carry the same requirements for original contribution to knowledge. You’ll pursue your individual research project under supervision and submit a thesis.

MSc by Research
An MSc by Research is based on a research project that can form the basis of a thesis; this is the route to PhD. You'll be supervised in the preparation of a research project under the guidance of a member of staff, resulting in a thesis. Research groups may have found the answer to this devastating disease.

Project background
The syndrome was previously believed to be a developmental or neurodegenerative disease because of its early appearance and the gradual deterioration of those affected. However, leading-edge research led by Professor Bird has presented the very real prospect of a future cure. By developing a genetic mouse model for Rett syndrome that mimics the genetic mutation that causes its symptoms, Professor Bird opened up a new avenue of research. In 2007, Dr Jacky Guy and other scientists in Professor Bird’s laboratory generated a modified MeCP2 gene into Rett model mice, which allowed controlled expression of normal MeCP2 protein— a lack of which had been determined to be the cause of Rett syndrome.

Mutant female mice carrying this modified gene exhibited the characteristics of Rett syndrome until normal MeCP2 expression was activated, after which they rapidly regained normal behaviour. This striking result indicated that the developmental or degenerative changes seen in Rett patients are reversible, and overturned previous understanding of the disease.

Research opportunities

Research environment
The Institute of Cell Biology (ICB), including the Wellcome Trust Centre for Cell Biology, is one of the UK’s largest and most dynamic community of researchers in the field. With about 30 research groups, which include about 50 PhD students, you’ll benefit from a busy programme of seminars, journal clubs and other research-funding activities and will be encouraged to publish your findings. You’ll also take part in student-led courses and talks.

We have an enviable record in academic career success. Our Institute reflects the School-wide figure of 84 per cent for students achieving academic posts after they complete their PhD.

We go beyond the study of animal behaviour to focus on the underpinnings of the science of evolution, down to the level of DNA, to look at just how organisms fundamentally develop as a result of natural selection.

Our current research falls under three broad themes: evolutionary and quantitative genetics, evolutionary ecology and behaviour, and biodiversity and ecology. Researchers are working on everything from viral evolution and host-paradise co-evolution to natural selection in the wild and plant conservation genetics.

Research environment
As a research student you'll be part of the Evolutionary Biology Research Group, with our 30 research groups and 50 PhD students in evolutionary research, working with the world’s leading authorities in biological processes.

Facilities
Topping our list of impressive research tools is Edinburgh Genomics, one of the UK’s biggest university-based genomics facilities. Attracting visiting researchers from all over the UK and internationally, this next-generation facility opens up new ways of creating research data. If your study involves bioinformatics, the Ashworth Bioinformatics Support Service provides a vital link with the expertise and facilities on offer through our world-leading School of Informatics.

English language requirements
See page 20.

Fees and funding
For fees see page 20 and for funding information see page 22.

See more online: www.ed.ac.uk/research/impact

MSc by Research
An MSc by Research is based on a research project tailored to your interests. It lasts one year full time or two years part time.

An MSc by Research is based on a research project tailored to your interests. It lasts one year full time or two years part time.

Project results
These potentially life-changing findings by the research team at the University have inspired worldwide awareness campaigns, a documentary, and fundraising programmes aimed at supporting further research. They underpin the rationale of multiple clinical trials now under way in both Europe and the US to test both symptom-relieving drugs and gene therapy to combat the underlying cause.

Leading-edge research led by Professor Bird has presented the very real prospect of a future cure.

See more online: www.ed.ac.uk/pgr/impact

Case study: Edinburgh’s research with impact
New hope for Rett syndrome sufferers

Rett syndrome is a severe autistic-spectrum disorder with delayed onset that affects one in 10,000 girls, which includes around 18,000 in the US, and an estimated 2,400 here in the UK. This regressive disease causes loss of speech and hand movement, coupled with autistic behaviour, an undersized brain (microencephaly), and growth retardation. A cure or therapy was thought to be most unlikely. However, leading geneticist Professor Sir Adrian Bird from the University’s School of Biological Sciences may have found the answer to this devastating disease.

Rett patients are reversible, and overturned previous understanding of the disease.

PhD
A UK 2:1 honours degree, or its international equivalent, in the field you propose to study.

MPhil
A UK 2:1 honours degree, or its international equivalent, in the field you propose to study.

MSc by Research
A UK 2:1 honours degree, or its international equivalent, in the field you propose to study.

Research environment
The Institute of Cell Biology (ICB), including the Wellcome Trust Centre for Cell Biology, is home to about 30 research groups carrying out world-class research into fundamental mechanisms relating to cellular function. We apply a wide range of approaches including molecular genetics, cell and structural biology, systems biology approaches and mathematical modelling.

Our research groups comprise one of the largest communities of cell biology researchers in the UK. Many of our staff are Fellows of the Royal Society and acknowledged leaders in their field. Most PhD students who train at the ICB continue with their academic career or join research in the industry, often becoming independent group leaders.

Diversity of interests
We offer a wide scope of projects covering different areas of cell biology, including the synthesis, processing, localisation and degradation of RNA; epigenetic control of gene expression, chromosome function and genome stability; mechanisms of cell growth and duplication; the rules that govern cellular architecture; biotechnology; synthetic biology; and microbial regulation. A variety of courses in microscopy, bioinformatics and proteomics are available to all our PhD students.

Facilities
The ICB provides an exceptional working environment. The Wellcome Trust Centre for Cell Biology is home to the Central Optical Instrumentation Laboratory (COLF), while image analysis at the boundary of biology and physics is provided through the nearby Collaborative Optical Spectroscopy Micromanipulation & Imaging Centre (COSMIC). The ICB is proud of its cutting-edge proteomics facility and automated drug screening platforms that facilitate discovery of new molecules that impact on cellular functions.

English language requirements
See page 20.

Fees and funding
For fees see page 20 and for funding information see page 22.
Research environment

Immunology and infection research has a proud tradition here at the School of Biological Sciences. As a researcher, you’ll be following in the footsteps of Nobel Prize winners – from malaria pioneer Sir Ronald Ross to the 2001 laureate Sir Paul Nurse – and other great names who have made groundbreaking discoveries over the years. Our leadership in infectious disease research has emerged alongside the School’s strength in population biology and quantitative genetics; our close association with biologists in these areas can be a valuable asset to your work.

The Institute of Immunology & Infection Research has more than 20 research group leaders, including seven professors. While genetics is a core discipline, our work extends over molecular and cell biology, immunology, evolutionary biology and epidemiology.

Themes

We cover a number of overlapping themes of study. In fundamental immunology, we look at how T lymphocytes interact and develop in response to antigen challenge, and how responses are initiated by dendritic cells and dampened by regulatory cells. Helminth, allergy and wound repair models are used to understand immune responses in both practical and evolutionary terms. Immunology regulation of disease projects to design immunological interventions to ameliorate pathology or to enhance host immunity. A combination of new vaccines against parasites and therapies for autoimmunity.

Work on molecular biology and genetics of parasites focuses on the identification of vaccine candidates and virulence factors in malaria parasites, the cell biology of trypanosomes and proteomics and transcriptomics of helminth worm parasites.

In molecular microbiology, we look at how microRNAs regulate immune signalling and how pathogens manipulate these processes. Host pathogen population biology integrates conventional immunology, pathogen research and systems and quantitative biology, using mathematical approaches in both experimental models and the epidemiology of human and animal infections.

Facilities

Our Institute offers comprehensive facilities, including tissue-culture facilities, state-of-the-art 17 colour flow cytometry and five-dimensional confocal microscopy, as well as equipment such as fast protein liquid chromatography, phosphorimaging and real-time polymerase chain reaction. There is also ready access to molecular technologies such as automated DNA sequencing, DNA arrays and mass spectrometry on the King’s Buildings campus.

English language requirements

See page 20.

Fees and funding

For fees see page 20 and for funding information see page 22.

I completed a PhD in Structural Biology at the University of Edinburgh. I originally joined the Walkinshaw group as a bioinformatics PhD candidate but through Professor Walkinshaw’s supportive and motivational mentorship took up the exciting challenge of X-ray crystallography, which I continued to investigate through a postdoctoral fellowship at the University of British Columbia, Vancouver, Canada.

Liam Worrall, PhD Structural Biology
About the School of Biological Sciences

Our School features a vibrant community of staff and students that continues a 400-year history of scientific exploration with innovative work that seeks to shape tomorrow’s world.

Research institutes
Our world-class research takes place in six research institutes:
• The Institute of Cell Biology
• The Institute of Evolutionary Biology
• The Institute of Immunology and Infection Research
• The Institute of Molecular Plant Sciences
• The Institute for Stem Cell Research
• The Institute of Quantitative Biology, Biochemistry and Biotechnology.

Many of our researchers also participate in one or more of our numerous cross-disciplinary research centres.

Programmes
Postgraduate teaching takes every advantage of our School’s expertise to give you outstanding opportunities to study within your chosen field, from programmes taught at the world famous Royal Botanic Garden Edinburgh to those that develop biofuels and new medicines. Our students can be found discovering the secrets of life through our wide-ranging research. We are constantly seeking to shed light on the secrets of life through our wide-ranging research. More than half of our research in biological sciences (56 per cent) was rated 4* world-leading in the Research Excellence Framework (REF) 2014 which places us in the UK’s top three by research quality (Research Fortnight REF 2014) and confirms our position as one of the world’s leading biological science research groups.

Throughout our membership of Scottish Universities Life Sciences Alliance, we work with colleagues in other institutions to maintain the country’s world-class research base. Our commitment to pioneering science, supported by a healthy flow of grant funding, helps create an environment where world firsts are possible. For example, the first genetically engineered vaccine against hepatitis B was developed here at the School of Biological Sciences. By joining us you will experience a unique opportunity to examine life processes at the very highest level.

Thriving community
Our School houses about 130 principal investigators, both academic teaching staff and independently funded senior research fellows, about 400 research assistants and technicians and more than 200 PhD students.

Some 90 administrative and technical staff support the School’s academic activities.

Research institutes
Our world-class research takes place in six research institutes:
• The Institute of Cell Biology
• The Institute of Evolutionary Biology
• The Institute of Immunology and Infection Research
• The Institute of Molecular Plant Sciences
• The Institute for Stem Cell Research
• The Institute of Quantitative Biology, Biochemistry and Biotechnology.

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Programmes
Postgraduate teaching takes every advantage of our School’s expertise to give you outstanding opportunities to study within your chosen field, from programmes taught at the world famous Royal Botanic Garden Edinburgh to those that develop biofuels and new medicines. Our students can be found discovering the secrets of life through our wide-ranging research.

Effective outcomes
The School of Biological Sciences continues to make its mark on the future. Entrepreneurial opportunities are supported by Edinburgh Innovations, the University’s commercialisation office, with a dedicated business development team embedded in the School. Across the University, Edinburgh Innovations has helped create more than 400 companies during the last 50 years.

Facilities and resources
Whatever tools you need to conduct your research, you’ll find the latest at the School of Biological Sciences.

Our Edinburgh Genomics sequencing service plays host to the National Environment Research Council National Sequencing Facility and Medical Research Council Hub Facility.

Advanced microscopy and flow cytometry are two of our major strengths. Our microscopy facilities house state-of-the-art widefield and confocal fluorescence and transmission and scanning electron microscopes. Our flow cytometry facilities offer cutting-edge analytical and sorting capabilities.

Extensively equipped
We have protein production and biophysical characterisation facilities, including surface plasmon resonance, ITC and spectroscopic equipment. We host more than 1,000m2 of controlled environment growth space and glasshouse space, and have computing resources for evolutionary biology, including four dedicated computer clusters for phyloinformatics, comparative genomics, population genetics and quantitative trait locus genetics.

Excellent facilities
We are based almost wholly at the University’s King’s Buildings campus, about 15 minutes by bus from the city centre. You can take advantage of the Noreen and Kenneth Murray Library, named after the pioneers of the first genetically engineered hepatitis B vaccine, as well as the Learning and Teaching Cluster and the social and sports facilities at King’s Buildings House. All postgraduate research students are given their own desk space in shared student offices.

Collections of the University
The University of Edinburgh has one of the world’s great collections, which has been growing ever since its foundation in 1583. Our collections include rare books, archives and manuscripts, art, historical musical instruments and a wide range of museum objects from geological specimens to anatomical models. If laid out end to end, we would have almost 60 kilometres of shelving and storage space devoted to our heritage material, from 1st century Greek papyrus fragments to new works of sculpture. This is curated by specialist staff across 45 sites and used for our teaching and research and by the wider public community.

The Centre for Research Collections in the Main Library is the hub for all our collections, where specialist curators make them available for study, research and pleasure. Postgraduate students are welcome to study original objects and have made many important research discoveries while working on the archives. You will find an incredible range of material in our collections that is available nowhere else in the world.

“I was very excited to be able to attend one of the best universities in the world. The programme is intensive and the professors kept us busy. Sometimes I struggled, but I was happy because I gained so much as a student here.”

Stamatina Fragkogianni, MSc Bioinformatics
Community

The School forms one of the largest academic groupings of biological scientists in the UK. Whether you are following a taught postgraduate programme or embarking on research, you will be welcomed into a supportive and enthusiastic community of students and staff.

The MSc experience
As an MSc student, there is always something to keep you motivated and inspired – from the University’s Festival of Creative Learning to the Edinburgh International Science Festival. Each of our MSc programmes has a dedicated administrator who is there to help you with any queries.

Support
All postgraduate students are members of our Graduate School, which enjoys an active academic and social calendar. The Graduate School offers you every opportunity to join in – from peer support groups and journal clubs to BioDocSci, our society run by and for research students and staff.

Inspiring environment
Our environment of shared knowledge and expertise has led to groundbreaking and globally recognised research achievements. Our research institutes provide a forum for development of ideas, collaboration and dissemination of results, along with an environment for training and mentoring research students and early career researchers. BioSkills, a database developed by our own researchers, makes it easy to come into contact with researchers from varied academic backgrounds and gain insights into new approaches and techniques. We are linked with:

- Edinburgh Bioinformatics
- The Centre for Translational & Chemical Biology
- Edinburgh Infectious Diseases
- The MRC Centre for Regenerative Medicine
- SynTHyS – Centre for Synthetic and Systems Biology
- The Welcome Trust Centre for Cell Biology
- The Welcome Trust Centre for Infection, Immunity & Evolution.

Many of our research projects also involve collaboration with Scotland’s Rural College, the Royal Botanic Garden Edinburgh and many other academic and commercial organisations. The School of Biological Sciences is lead partner in the EASTBIO Doctoral Training Partnership, a collaboration between the universities of Aberdeen, Dundee, Edinburgh and St Andrews. Funded by the Biotechnology and Biological Sciences Research Council, EASTBIO awards a minimum of 34 fully-funded PhD studentships annually and provides enhanced training to its students.

More information: www.eastscotbiodtp.ac.uk

The Innovation Forum
Edinburgh hosts a local branch of the Innovation Forum, a global network of researchers and entrepreneurs active at the universities of Cambridge, Oxford, London, Edinburgh, Copenhagen, Lausanne, Barcelona, Hong Kong and Tokyo. This is a student-led initiative seeking to promote innovation by building bridges between academia, industry and government, and linking innovative minds across disciplines.

More information: www.inno-forum.org

Links and partnerships
Our participation in the work of a wide variety of interdisciplinary research centres reflects the importance we place on the collaborative approach to research. Through these connections, you’ll come into contact with researchers from varied academic backgrounds and gain insights into new approaches and techniques. We are linked with:

- Edinburgh Bioinformatics
- The Centre for Translational & Chemical Biology
- Edinburgh Infectious Diseases
- The MRC Centre for Regenerative Medicine
- SynTHyS – Centre for Synthetic and Systems Biology
- The Welcome Trust Centre for Cell Biology
- The Welcome Trust Centre for Infection, Immunity & Evolution.

The University of Edinburgh

Employability and graduate attributes
We offer a research-rich environment in which to develop as a scientist or entrepreneur and you will gain skills that benefit your personal and professional development whichever direction your career takes.

The University provides a range of services and opportunities to help you make the most of your time here and the School offers professional internship schemes to MSc and PhD students.

Professional internships
We offer EASTBIO PhD students the opportunity to pursue a professional internship, supported by a Postgraduate Placements Coordinator. All EASTBIO students spend three months of their PhD programme pursuing a non-academic internship. This is designed to help you develop a broad range of professional skills.

Science communication
There are plenty of opportunities to develop science communication skills. The student-run BioPod series of podcasts covers stories from across the School – you might find yourself the subject of one, or helping to produce them. Similarly, our Press Gang works with the University’s Press Office and the Scottish Initiative for Biotechnology Education to spread the word on the School’s pioneering work. Many of our students are part of the EuSci team, publishing a regular science magazine, and there are also opportunities to get involved with the annual Edinburgh International Science Festival.

Institute for Academic Development
All postgraduate students can benefit from our Institute for Academic Development (IAD), which provides information, events and courses to develop the skills you will need throughout your studies and in the future. IAD events also offer the perfect opportunity to meet and network with other postgraduates from across the University.

Further information is available online: www.ed.ac.uk/iad/postgraduates

For taught postgraduates, IAD provides a popular study-related and transferable skills support programme. It is designed to help you settle into postgraduate life, succeed during your studies and move confidently to the next stage of your career. We offer on-campus and online workshops and one-to-one study skills consultations, plus online advice and learning materials. Workshops and learning resources cover key topics tailored to different academic stages, including: pre-arrival sessions; getting started with your studies; critical reading, writing and thinking; managing your exams; and planning for and writing up your dissertation.

IAD also provides a comprehensive programme of transferable skills training, resources and support for researchers completing a doctorate. The workshop programme is designed to help you successfully prepare for the various milestones of your PhD, from getting started with your research, to writing up and preparing for the viva, as well as developing personal and professional skills that can be transferred to your future employment. Workshops cover topics such as writing skills, reference management tools, statistics, preparing for conferences, delivering presentations, time and project management, and personal development. IAD also offers online resources and planning tools to help get your research started, as well as support for tutoring and demonstrating, and public engagement and communication.

Careers Service
Our Careers Service plays an essential part in your wider student experience at the University, offering a range of tailored careers and personal development guidance and support. We support you to recognise the wealth of possibilities ahead, while at university and after graduation, helping you explore new avenues, tap into your talents and build your employability with confidence and enthusiasm.

We provide high-quality, tailored support to postgraduate students. From exploring career options to making decisions, from CV writing to interview practice, from Employer internships to graduate jobs and from careers fairs to postgraduate alumni events, we will help you prepare for the future.

We sustain and continually develop links with employers from all industries and employer sectors, from the world’s top recruiters to small enterprises based here in Edinburgh. Our employer team provides a programme of opportunities for you to meet employers on campus and virtually, and advertises a wide range of part-time and graduate jobs.

More information: www.ed.ac.uk/careers/postgrad

Platform One
Platform One is an online meeting place where members of the University community, past and present, can gather. It aims to provide a supportive environment where students, alumni, staff and volunteers can share knowledge and experiences. Together, we form a single community that meets on Platform One. Join us and find out more about the people and possibilities.

More information: www.ed.ac.uk/platform-one

Backing bright ideas
Edinburgh Innovations, the University’s commercialisation service, offers free support to student entrepreneurs including one-to-one business advice and a range of workshops, bootcamps, competitions and networking events. Successful recent clients include David Boteas, creator of the Dehumaniser sound effects software used by Hollywood movies and blockbuster video games; and Enactus Edinburgh, a team of student social entrepreneurs who represented the UK in the Enactus World Cup with their local and international projects.

www.ed.ac.uk/platform-one
Applications and fees

We have an online application process for all postgraduate programmes. It’s a straightforward system with full instructions, including details of any supporting documentation you need to submit.

When applying, you will set up an account, which lets you save your application and continue at another time.

Full guidance on our application system is available at: www.ed.ac.uk/postgraduate/applying

General requirements
Our usual entrance requirement for postgraduate study is a UK 2:1 degree, or its international equivalent (www.ed.ac.uk/international/graduate-entry), in a subject related to your chosen programme. You will also need to meet the University’s language requirements (see below).

Entry requirements for individual programmes can vary, so check the details for the specific programme you wish to apply for.

References
For applications to taught programmes, the normal requirement is one reference, although an additional reference may be requested in individual cases. For applications to research programmes, two references are required. You should check the entry online for exact requirements for your intended programme of study. For general guidance on references, visit: www.ed.ac.uk/postgraduate/references

Deadlines
Taught masters applications
Some programmes have application deadlines. Please check the programme entry online for details. For all other programmes, you are encouraged to apply no later than one month prior to entry to ensure there is sufficient time to process your application. However, earlier application is recommended, particularly where there is a high demand for places or when a visa will be required. Should you wish to submit a late application, please contact us for guidance. If you are applying for funding we encourage you to submit your programme application as early as possible, as in most cases you will need a programme offer before you can make your funding application. Most funding deadlines are no later than June.

Research applications
For funded studentships our main application deadline is usually around December. Occasionally funded studentships are advertised later in the academic year. Please check our website (www.ed.ac.uk/biology/prospective-students) for full deadline details. We accept applications from students with their own funding all year round.

English language requirements
You must demonstrate a level of English language competency at a level that will enable you to succeed in your studies, regardless of your nationality or country of residence. We accept the following English language qualifications at the grades specified:

- IELTS Academic: total 6.5 (at least 6.0 in each module).
- TOEFL iBT: total 92 (at least 20 in each module).
- PTE Academic: total 61 (at least 56 in each of the Communicative Skills sections).
- CAE and CPE: total 176 (at least 169 in each module).
- Trinity ISE: ISE II (with distinctions in each module).
- Trinity ISE: ISE I (with distinctions in each module).
- IELTS Academic: total 6.5 (at least 6.0 in each module).

Please note:
- English language requirements can be affected by government policy so please ensure you visit our degree finder to check the latest requirements for your programme: www.ed.ac.uk/postgraduate/degrees
- Your English language qualification must be no more than three and a half years old at the beginning of your programme, unless you are using IELTS, TOEFL, PTE Academic or Trinity ISE, in which case it must be no more than two years old.
- We also accept recent degree-level study that was taught and assessed in English in a majority English-speaking country (as defined by UK Visas & Immigration), or at a university in a non-majority English-speaking country which has specifically been approved by the University of Edinburgh’s Admissions Qualifications Group. A list of approved universities is published on our website. If you are not a national of a majority English speaking country, then your degree must be no more than three and a half years old at the beginning of your programme of study.
- We do not require you to take an English language test before you apply. Abbreviations: IELTS – International English Language Testing System; TOEFL-iBT – Test of English as a Foreign Language Internet-Based Test; PTE – Pearson Test of English; CPE – Certificate of Proficiency in English; CAE – Certificate in Advanced English; Trinity ISE – Integrated Skills in English. www.ed.ac.uk/english-requirements/pg

Tuition fees
The following table provides an overview of indicative fee levels for programmes commencing in 2020.

Please note:
- International students starting full-time taught programmes of study lasting more than one year will be charged a fixed annual fee.
- All other students on full-time and part-time programmes of study lasting more than one year should be aware that annual tuition fees are subject to revision and are typically increased by approximately five per cent per annum. This annual increase should be taken into account when you are applying for a programme.
- In addition to tuition fees, your programme may be subject to an application fee and additional costs/programme costs may apply. Please check the latest programme information online.

Asylum seeker tuition fee status and scholarship
Information for applicants seeking asylum from within the United Kingdom, who wish to commence a programme of study at the University in 2020, is available online. This includes our tuition fee rates and scholarship opportunities: www.ed.ac.uk/student-funding/asylum

Tuition fees for EU students
EU students enrolling in the 2020/21 academic year will be admitted as Scottish/EU fee status students. Taught masters students will be eligible for the same tuition support as Scottish domiciled students from the Student Awards Agency Scotland (SAAS). For UK/EU students

<table>
<thead>
<tr>
<th>Programme Duration</th>
<th>Annual Fee</th>
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<tbody>
<tr>
<td>Taught programme 1-year FT</td>
<td>£16,400</td>
</tr>
<tr>
<td>Taught programme 2-years PT</td>
<td>£6,200</td>
</tr>
<tr>
<td>MSc by Research 1-year FT</td>
<td>£8,750</td>
</tr>
<tr>
<td>MSc by Research 2-years PT</td>
<td>£14,375</td>
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<tr>
<td>MPhil 2-years FT</td>
<td>£4,327*</td>
</tr>
<tr>
<td>PhD 3-years FT</td>
<td>£4,327*</td>
</tr>
<tr>
<td>PhD 6-years PT</td>
<td>£2,164*</td>
</tr>
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</table>

Online Learning
<table>
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<tr>
<th>Programme Duration</th>
<th>Annual Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taught programme 1-year FT</td>
<td>£10,900</td>
</tr>
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</table>

For international students

<table>
<thead>
<tr>
<th>Programme Duration</th>
<th>Annual Fee</th>
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<tr>
<td>Taught programme 1-year FT</td>
<td>£32,500</td>
</tr>
<tr>
<td>MSc by Research 1-year FT</td>
<td>£28,150</td>
</tr>
<tr>
<td>MPhil 2-years FT</td>
<td>£23,500</td>
</tr>
<tr>
<td>PhD 3-years FT</td>
<td>£23,500</td>
</tr>
</tbody>
</table>

* Figure shown is the 2019/20 fee level
All other fees quoted are indicative of 2020/21 fee levels. Because these figures are indicative, it is important you check online before you apply and check the up-to-date fee level that will apply to your specific programme: www.ed.ac.uk/student-funding/tuition-fees/postgraduate

The University of Edinburgh
Biological Sciences Postgraduate Opportunities 2020

www.ed.ac.uk/biology
Funding

A large number of scholarships, loans and other funding schemes are available for your postgraduate studies. It is only possible to show a small selection in print. To see the full range, please visit: www.ed.ac.uk/student-funding/postgraduate

Scholarships at the University of Edinburgh

- **China Scholarships Council/University of Edinburgh Scholarships (China)**
  A number of scholarships for PhD study to candidates who are citizens and residents of China. Participating schools to be confirmed: www.ed.ac.uk/student-funding/china-council

- **Edinburgh Global Research Scholarships**
  These scholarships are designed to attract high-quality international research students to the University: www.ed.ac.uk/student-funding/global-research

- **Principal’s Career Development PhD Scholarships**
  These provide a valuable opportunity for PhD students to undertake training and skills development and offer opportunities in areas such as teaching, public engagement, entrepreneurship, data science, and research. Each award covers the UK tuition fee and a stipend: www.ed.ac.uk/student-funding/development

- **School of Biological Sciences Research Scholarships**
  Within the School of Biological Sciences, a number of highly competitive research scholarships are available each year to new postgraduate research students, including funding from BBSRC, EPSRC, NERC, MRC. Welcome Trust and our School International Scholarships: www.ed.ac.uk/biology/prospective-students

- **School of Biological Sciences Taught Postgraduate Bursaries**
  The School of Biological Sciences offers a limited number of awards to overseas students joining taught masters programmes: www.ed.ac.uk/student-funding/biological-bursaries

Research council awards

Research councils offer awards to masters and PhD students in most of the Schools within the University of Edinburgh. All studentship applications from the research councils must be made through the University, through your School or College office. Awards can be made for both taught and research programmes.

Generally only those UK/EU students who have been resident in the UK for the preceding three years are eligible for a full award. For some awards, candidates who are EU nationals and are resident in the UK may be eligible for a fees-only award. The UK Government has confirmed that EU postgraduate research students commencing their studies in 2020/21 will retain their fee status and eligibility for research council support for the duration of their programme: www.ed.ac.uk/student-funding/researchcouncils

The University also offers a number of scholarships in partnership with the following overseas government agencies:

- **Mexico**
  Banco de Mexico and the Banco de Mexico’s FONDIH trust (FIDERH): www.fiderh.org.mx
  Fundación Mexicana para la Educación, la Tecnología y la Ciencia (FUNED): www.funedmx.org

- **Pakistan**

Loans available for study at the University of Edinburgh

The University of Edinburgh is a participating institution in the following loans programmes, meaning we certify your student status and can help with the application process.

- **The Canada Student Loans Program**
  The University is eligible to certify Canadian student loan applications: www.ed.ac.uk/student-funding/ca-loans

- **Erasmus+**
  The Erasmus+ Master Loan helps masters students with their living and tuition costs when studying in an Erasmus+ country other than where they live or where they took their first degree. For more information: erasmusplus.org.uk/master-loan

- **Postgraduate Doctoral Loans England**
  Student Finance England offers postgraduate loans for doctoral study, payable to eligible students and divided equally across each year of the doctoral programme: www.gov.uk/postgraduate-loan

- **Postgraduate Doctoral Loans Wales**
  Student Finance Wales offers loans for postgraduate doctoral study, payable to eligible students, divided equally across each year of the doctoral programme: www.studentfinancewales.co.uk/postgraduate-students/postgraduate-doctoral-loan

- **Postgraduate Loans (PGL) England**
  Student Finance England offers postgraduate loans for taught and research masters programmes, payable to eligible students: www.gov.uk/postgraduate-loan

- **Postgraduate Loans (PGL) Northern Ireland**
  Student Finance Northern Ireland offers eligible students a tuition fee loan for taught and research programmes, at certificate, diploma, and masters level, which will be paid directly to the University: www.studentfinance.ni.co.uk

- **Postgraduate Loans (SAAS)**
  Scotland and EU
  The Student Awards Agency Scotland offers eligible students tuition fee loans for taught and research programmes at diploma and masters level, which will be paid directly to the University. Full-time students resident in Scotland can also apply for a non-income assessed living cost loan: www.saas.gov.uk

- **Postgraduate Master’s Finance Wales**
  Student Finance Wales offers eligible students postgraduate finance for taught and research masters programmes: www.studentfinancewales.co.uk

- **US Student Loans**
  The University is eligible to certify loan applications for US loan students. Full details on eligibility and how to apply can be found online: www.ed.ac.uk/student-funding/us-loans

Other sources of funding

The following are examples of the many scholarships and support schemes available to students from particular countries who meet certain eligibility criteria.

- **Chevening Scholarships**
  A number of partial and full funding scholarships are available to one-year masters students: www.chevening.org

- **Commonwealth Scholarships**
  Scholarships available to students who are resident in any Commonwealth country, other than the UK: www.dfid.gov.uk/cscuk

- **Marshall Scholarships (USA)**
  Scholarships available to outstanding US students wishing to study at any UK university for at least two years: www.marshallscholarship.org

Key

- Taught masters programmes
- Masters by Research programmes
- Research programmes
The School of Biological Sciences is on the King’s Buildings campus, where our teaching and administration takes place across several buildings. The King’s Buildings campus is around two miles from Edinburgh city centre and is well served by buses.
On 23 June 2016 the UK electorate voted in a national referendum to leave the European Union. EU postgraduate taught students enrolling in the 2020/21 academic year will be admitted as Scottish/EU fee status students and eligible for the same tuition support as Scottish domiciled students for the duration of their studies. This will still be the case in the event of a Brexit no deal scenario. For the latest information for students and applicants from the EU, please visit our website: www.ed.ac.uk/news/eu

The University’s standard terms and conditions will form an essential part of any contract between the University of Edinburgh and any student offered a place here. Our full terms and conditions are available online: www.ed.ac.uk/student-recruitment/terms-conditions

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