Open Days

Please visit our website to book your place at one of our Open Days.
www.lincoln.ac.uk/opendays
Welcome

It is my great pleasure to welcome you to the school of Life Sciences at the University of Lincoln.

Our school aims to provide a thriving and dynamic environment in which to learn and offer an interdisciplinary approach to help prepare you for a career at the cutting-edge of life sciences.

Teaching is underpinned by the research expertise of our academic staff, encompassing areas as diverse as animal behaviour, cognition and welfare, biomedical and bioveterinary science, biochemistry, zoology, evolution and ecology.

Our aim is to support you to develop the practical, technical and research skills required for a career in a wide range of scientific disciplines. There are opportunities to work alongside academics on some of the School’s ground-breaking research projects and to take part in field trips around the world to gain first-hand experience of your subject. All our BSc programmes have the option of a level 0 foundation year as well as the option of a 4 years MBio route, which can give you the opportunity to conduct an extended research project and gain enhanced research and employability skills.

You can benefit from our excellent facilities including the Joseph Banks Laboratories and Minster house. These facilities are part of a multimillion pound investment and for part of the Science and Innovation Park in Lincoln.

If you would like to know more about the School of Life Sciences, please contact us using the details at the back of this brochure or visit us on an Open Day to experience our School and the Lincoln campus for yourself.

Professor Steve Bevan
Head, School of Life Sciences
The School of Life Sciences offers a vibrant academic community with research-focused teaching by academics at the forefront of their respective fields. There are opportunities to undertake practical work, with students conducting their own projects alongside leading academics, who are active researchers and professionals in relevant areas.

The University offers an integrated Master’s programme (MBios). Students on the MBio follow the same course as those on the BSc and undertake an additional research-intensive year in year four. You can find out more about what is part of the MBio on page 5. We offer the following undergraduate degree courses:

**BSc (Hons)/MBio Animal Behaviour and Welfare**

The scientific study of animal behaviour and welfare furthers our understanding of why animals behave in the way that they do, and helps us learn how best to respond to the many challenges that face animals living in captive and wild environments. This programme employs a multidisciplinary and research-driven approach to the study of animal behaviour and welfare. You will be taught by experts in the modular fields of the programme, and you will have the opportunity to develop important skills in practical laboratory techniques, data analysis and interpretation, and written and oral communication. Graduates will be equipped to pursue careers in a variety of roles, including research-active staff in the forefront of animal welfare, conservation, or environmental management.

**BSc (Hons)/MBio Biomedical Science**

This programme, accredited by the Institute of Biomedical Science, is designed to lay the foundations of knowledge needed to understand and investigate human disease. It aims to prepare students for careers as biomedical scientists in the NHS or as scientific researchers. You will be part of a programme which offers a broad scientific base for the investigation of human diseases. As a result, you may study topics such as haematology, clinical biochemistry and immunology, cellular pathology and medical microbiology. A multidisciplinary approach incorporates lectures, seminars and laboratory-based work. There is an emphasis on the development of hands-on experience and transferable skills in information retrieval, data analysis, problem-solving and critical thinking.

**BSc (Hons)/MBio Biochemistry**

This programme takes a research-centred approach and teaching reflects our growing expertise in pharmacology, biomedical science, biology and biotechnology. Advances in biochemical research have led to a greater understanding of metabolic regulation, cell signalling, disease biology, drug development and genetics, and have revolutionised the biotechnology industry. You have the opportunity to engage in the research undertaken in the School of Life Sciences. This learning approach enables you to develop important skills in practical laboratory techniques, data analysis and interpretation, and scientific writing. Graduates of some of the previous cohorts include: medical school, study at PhD level, PGCE teacher training, MRes in Molecular and Cellular Biology as well as Master’s degrees in Biotechnology, Bioinformatics and Scientific Journalism.

**BSc (Hons)/MBio Botany**

Botany explores how plants have evolved, the ways in which they interact with their environment, and the systems that underlie plant biology. Students will have the opportunity to learn the science that underlies animal health and disease from our team of academicians, which includes research-active staff at the forefront of their fields. The course aims to prepare you for a range of careers in animal-related professions.

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Field Trips

In addition to field trips incorporated within modules, the School of Life Sciences currently runs an optional field course module for undergraduate students. As part of the module, students have previously visited the following locations:

- Cloud forests of Ecuador
- Peniche, Portugal
- Mankwe Wildlife Reserve, South Africa
- Finland

Many of these locations are biodiversity hot spots with a variety of animals, birds, insects and plants to study, providing students with the chance to experience species they may not have previously encountered. The field trips provide opportunities to see animals in their natural environment; such as dolphins and pumas can be found there.

Each of the excursions can enable you to travel before and after the trip with opportunities to experience a new culture. During the trip you can with the chance to experience species they may not have previously encountered. The field trips provide opportunities to see animals in their natural environment; such as dolphins and pumas can be found there.

Field study experience

This module can be an excellent opportunity to gain valuable field study experience and practical skills, which may enhance your employability and can boost your CV. Working on projects with other students and tackling challenges can enable you to develop your problem solving and transferable skills and gain confidence. Lecturers from across the School of Life Sciences take part in the trip, providing you with an opportunity to learn from a range of experts.

Study unusual species

Students can learn about the ecology and conservation of the area. Before the trip students write a project proposal to develop their knowledge of the location and its wildlife. On each trip students are introduced to local flora and fauna, present a group project, complete an identification test of plants, vertebrates and invertebrates, work on an allocated project and write a report on their project. Projects can range from ecology, animal behaviour and plant ecology to the study of antimicrobial compounds. The trips can take place in the summer before the start of the final year of your degree. The field trips last for approximately 8-10 nights.

Costs

Accommodation and main meals for 8-10 nights are currently paid for by the School of Life Sciences. Students are responsible for their travel (including the cost of flights), accommodation and general living costs before and after the trip. Please see our website for more information.

Residential field trips

First and second year students on the Zoology, Biology and Animal Behaviour and Welfare degrees undertake residential field trips, a compulsory part of the evolution and ecology module in first year and the ecology module in second year. In previous years, first-year students went on a three-day trip to Malham in the Yorkshire Dales as part of the evolution and ecology module. The second year ecology module enables students to go on a residential field trip to Boggle Hole, Yorkshire for four nights. Students are able to use the knowledge and skills they have acquired during the first two years of their degree and apply these to answering questions relevant to ecology.

MBio

The University offers an integrated Master’s programme (MBio). This includes an additional research-intensive final year, after the three-year BSc, to facilitate progression to further research at PhD level and enable students to gain the skills required to stand out in a competitive jobs market.

The aim of the MBio is to prepare students for a research career, to further increase the skillset of BSc students and enable an easier transition to postgraduate study. Research experience is a key element of the MBio year and students can become part of an active research group with the opportunity to develop their skills. Students can gain a range of transferable skills that would be useful for a variety of professions.

The MBio year comprises three modules:

- Professional Skills
  - This module enables students to learn to write abstracts, press releases and grant proposals.
- Research Techniques
  - This module entails report writing from a selection of practical workshops.
- Research Project
  - This spans the full length of the final year.

Students are assigned a supervisor for the duration of the MBio year. There is a large choice of assignments during the year and supervisors aim to tailor workshops to students’ needs, depending on their area of research.

MBio students undertake the standard three-year BSc before entering the final MBio year. Students may be able to transfer from their current BSc at the end of year two, subject to gaining the necessary grades and success at internal interview.

Work Placements

Undergraduate students within the School of Life Sciences have the opportunity to take an optional work placement, enabling you to gain valuable experience and a competitive edge in the jobs market when you graduate.

A work placement can give you an insight into the industry you would like to work in and valuable professional experience. Placements present an opportunity to broaden your subject knowledge and gain transferable skills. Work placements can boost your CV as the skills that you gain are often relevant for your future career. During your placement, you may have the opportunity to apply the theory you have learned during your time at University and boost your confidence about your subject.

Some of our students apply for and undertake a paid year in industry, usually between the second and third year of their degree. Undergraduate students in the School of Life Sciences have previously undertaken work placements with GlaxoSmithKline, British Chlorophyll, Processors and Growers Research Organisation (PGRO) and Waltham Centre for Pet Nutrition.

Shorter funded and non-funded placements may be available during the summer months to provide laboratory experience to enthusiastic students.

While we encourage you to look for your own placement opportunities, you will have the support of our academic staff to advise you. Many of our academic staff have worked in industry, and may recommend organisations that can provide placement opportunities relevant to your degree anywhere in the UK or abroad.

During your time away from the University you can continue to receive the support of the School of Life Sciences, and you can make use of all other University support services. We aim to ensure a tutor will visit you at your placement to check on your progress. This visit is an opportunity for you to discuss your placement and ask any queries that may have arisen during your work experience.

While on placement, students are responsible for their own travel, accommodation and general living costs.

“The overseas trip to Ecuador was a once in a lifetime opportunity for me and was a real highlight. I have thoroughly enjoyed my university experience and Lincoln is a wonderful place to be.”

For more detail and the most up-to-date information: www.lincoln.ac.uk/home/lifesciences/overseasfieldtrips/


Postgraduate Study

Taught programmes

MSc Biotechnology
This academically rigorous programme aims to provide students with the opportunity to develop advanced theoretical knowledge, understanding, practical experience and training with a particular focus on modern molecular and systems biology approaches to emerging technology. The course provides specialist training in medical, industrial, environmental and fermentation biotechnology with the opportunity to complete a research project in one of these areas.

For more detail and up-to-date information:
www.lincoln.ac.uk/p/biot

MSc Clinical Animal Behaviour
This Master’s degree aims to develop your theoretical and practical skills for the management of problem behaviour in companion animals. It is headed by a team of experts, including Europe’s first veterinary behaviour professor, European and Royal College of Veterinary Surgeon’s specialist Professor Daniel Mills.

For more detail and up-to-date information:
www.lincoln.ac.uk/p/cab

MSc Microbiology
This programme aims to equip graduates with the advanced knowledge and skills required to embark on further research or employment in industries striving to solve major global challenges such as antibiotic resistance and the provision of clean drinking water. This aims to prepare graduates for a broad range of careers within industrial, commercial, government and environmental settings and further postgraduate study.

During the course, you will have the opportunity to investigate diverse areas of microbiology which are of concern to the healthcare, environmental, ecological and biotechnological sectors. You will also have the chance to undertake research in relation to medical, environmental or industrial microbiology, which can further enhance your knowledge, skills and career options.

For more detail and up-to-date information:
www.lincoln.ac.uk/home/course/micbioms/

Research programmes

MPhil/PhD in Life Sciences
We welcome applications at MPhil/PhD level across the life sciences. The School offers a supportive academic community in which students can explore their chosen area and develop transferable skills.
Research is conducted within five substantial research groups. Scientists in Animal Behaviour, Cognition and Welfare explore the causes, functions and evolution of animal behaviour and the impact this has on animal welfare. Those in Evolution and Ecology examine population dynamics and evolutionary processes at all levels of biological organisation, including agricultural ecosystems. Researchers in Diabetes, Metabolism and Inflammation bring together a vast array of world-leading knowledge and expertise, and are working on aspects of predictors, treatment and care for diseases such as type 1 and 2 Diabetes, Asthma and Chronic Obstructive Pulmonary Disease (COPD). Some of our exciting research areas include communication and evolution of animal signals, cancer biology, behavioural ecology, cardiovascular disease, climate change biology, conservation, microbial genomics, diabetes, virology, early tetrapod evolution, and the genetic diversity of captive breeding programmes.

All Life Sciences subjects have a high component of practical laboratory or field work and the technical team will be the staff who prepare and support these practical sessions. Together with academic staff and demonstrators, the technical team strive to ensure you get an engaging experience with hands on opportunities to learn the practical techniques and instrumentation that are key aspects of your scientific training.

During the third year of your course, and the 4th year if you are studying towards an MBio degree, you will undertake an independent study project. Those of you who opt for laboratory or field-based research will be provided with support, often one to one, from a member of the technical team with the relevant skills and expertise for your specialist subject. As well as ensuring you have all the materials needed for your project, technicians provide training and support on specialist instruments such as electron microscopy and clinical chemistry analysers, amongst others. Working with your academic supervisor, they will ensure you have every opportunity to gain practical training and experience in your chosen specialist subject.

For more detail and up-to-date information:
www.lincoln.ac.uk/course/lifescrp

MSc by Research in Life Sciences
This programme provides an opportunity for students to begin research in life sciences. You can collaborate with academics working on studies and projects in order to answer fundamental questions in molecular biology and biomedical science, forensic science and microbiology, animal and plant biology, and evolution and ecology.

For more detail and up-to-date information:
www.lincoln.ac.uk/p/life

Dr Andy Gilbert
Senior Laboratory Technician

"I undertook my undergraduate degree at the University of Nottingham in Biology where I achieved a First Class Degree and also developed a keen interest in Microbiology, Immunology and Molecular Biology. I continued my studies for a PhD in Microbiology at the University of Birmingham where I learnt and developed a wide range of different skills essential to the life sciences subjects. I have been a Senior Laboratory Technician at the University of Lincoln for two years where I organise practical classes and demonstrations and teach a host of these acquired skills, such as microscopy and mycology, to our undergraduate and postgraduate students on a daily basis. The role as a technician exposes me to additional techniques allowing me to continue my own learning and professional development whilst passing on key skills onto our students."

Technical Support

The School of Life Sciences is supported by an enthusiastic and friendly team of highly skilled and experienced technicians, who will support you in the practical aspects of your studies in the Janet Lane-Claypon Building, Joseph Banks Laboratories or Minister House.

The majority of staff have degrees, and several are qualified to doctoral level in subjects ranging from molecular biology and biomedical science to animal behaviour. Many of the team belong to professional bodies and have achieved, or are working towards, nationally recognized professional recognition as Registered Scientist (RSci), and levels of Higher Education Academy fellowship.

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For more detail and up-to-date information:
www.lincoln.ac.uk/home/course/micbioms/
Our Facilities

The University of Lincoln’s city centre campus provides a modern student-centred environment. Life Sciences students can access some of the latest equipment in our laboratories, enabling you to develop the practical skills necessary for a career in science.

Joseph Banks Laboratories
The Joseph Banks Laboratories opened in 2014 as a result of a £14 million redevelopment project designed to provide science students and researchers with professional-standard facilities. The facility includes research laboratories for molecular and cell biology, microbiology, tissue biology, bioacoustics and ancient DNA analysis.

In addition, students can benefit from the teaching and social spaces within the building which have been designed for students and teaching staff to share.

Minster House
Minster House accommodates research labs for animal cognition, behaviour and welfare research. Students can access a range of resources including aquatic and reptile facilities, an insectary and a bioacoustics laboratory.

Janet Lane Claypon Building
Our purpose-built Janet Lane Claypon Building contains large laboratory spaces, including specialist teaching areas for molecular and cell biology and a class 2 level containment laboratory for microbiology. All laboratories are equipped with large displays connected to an audio-video system that are used for demonstrations during practical work.

Riseholme Campus
Situated just three miles north of Lincoln in a beautiful parkland setting, our Riseholme Campus offers Life Sciences students the opportunity to study in a rich rural environment. The Riseholme estate has more than 20 hectares of mixed woodlands, and extensive water features, which offer an outstanding research resource for students and staff in subjects such as Biology, Zoology and Animal Behaviour and Welfare.

Great Central Warehouse Library
A dedicated subject librarian can help you to navigate and locate a wide range of subject-specific print and electronic resources in our award-winning* Great Central Warehouse Library.

For more information about our campus and facilities:
www.lincoln.ac.uk/home/studentlife/campusandfacilities/
Learn from Experts

Our students are taught by, and work alongside, academics with world-renowned expertise and professional industry experience. In addition, some of the finest thinkers in their fields come to Lincoln to deliver inspirational talks to our students.

Professor Anna Wilkinson
Professor of Animal Cognition
Animal Behaviour and Welfare, Deputy Programme Leader
Dr Wilkinson teaches across a range of undergraduate Life Sciences programmes, including Animal Behaviour and Welfare, Zoology, Bioveterinary Science and Biology.

Dr Matthew Simmonds
Senior Lecturer, Programme Leader for Biomedical Science
Dr Matthew Simmonds recently joined the School of Life Sciences from the Oxford Centre for Diabetes, Endocrinology and Metabolism, at the University of Oxford, where he was a University Research Lecturer and Diabetes Research and Wellness Foundation Non-Clinical Fellow. Dr Simmonds's research involves investigating genetic predictors of long-term pancreas transplant function in people with Type 1 diabetes. His research group at the University of Oxford was the first to identify several genetic variants within the genomes of both donors and transplant recipients which impact upon long-term pancreas graft function. Dr Simmonds plans to develop this research looking at genetic predictors of pancreas transplant function. He is currently based in the Joseph Banks Laboratories and teaches biomedical sciences at the University.

To find out more about our current academics, please visit: www.lincoln.ac.uk/home/lifesciences/staffcontactlist/

Student Engagement

The University works extremely hard to offer undergraduate students more responsibility and practical engagement in their course. There are a range of initiatives in collaboration with our Student Services, Student Wellbeing and our Students’ Union, which aim to link undergraduate study with research and to support you to become engaged in the development of your subject and the University. You may be given opportunities to work alongside academics on research projects in your discipline to gain experience, develop new skills and make a meaningful contribution to the production of knowledge alongside experienced researchers.

Student and academic collaboration

The Red Squirrel is the only native tree squirrel in Europe but it is heavily threatened in Britain by habitat loss, disease and, in particular, by competition from introduced Grey Squirrels. Red Squirrels have now been replaced by Grey Squirrels throughout the majority of Britain and only remain in areas of Northern England and Scotland, and small regions in Wales and Southern England. Grey Squirrels had been eradicated on Mersea Island in Essex, which meant that between 2012 and 2015 the island was a site of a reintroduction programme for Red Squirrels. Released squirrels, and their offspring, were monitored by members of the public who recorded their sightings on social media pages.

For her dissertation project, Eleanor Smith (BSc Zoology, now studying for a MSc by research), originally from Mersea, analysed these sightings from the start of the reintroduction up to 2017. The population of Red Squirrels rose steadily over the study period, as did interest from the public, with, unsurprisingly, sightings being biased to areas of increased human habitation. With Red Squirrels becoming increasingly widespread across the island over the years, the density of sightings significantly positively correlated with density of greenery cover (e.g. woodlands and garden), and was significantly affected by type of habitat (rural versus suburban). To improve the chance of maintaining and maximising the population of Red Squirrels on Mersea, future conservation efforts could include connection of woodland fragments, increased public awareness and monitoring of genetic diversity. This collaborative project between our academics and undergraduate students, was published in The Essex Naturalist in 2018.
Examining the biophysics of acoustic signals of a new bush-cricket species

Student Andrew Baker has seen two of his undergraduate papers published: the Journal of Insect Physiology and in Zoologischer Anzeiger, leading journals in Zoology. Andrew worked with Prof. Fernando Monteleon-I and research fellow Dr. Thorin Jonsson in studying the acoustic signals produced by a new species of bush-cricket from the tropical forests of Ecuador and Colombia.

Andrew Baker is first author on both papers entitled: Wing resonances in a new dead-leaf mimic katydid (Tettigonidae: Pseudoophyllinae) from the Andean cloud forests, and Complex wing motion during stridulation in Nasonotus foreli (Orthoptera: Tettigonidae: Pseustophyllinae). Andrew studied the mechanics of sound production and the biophysics of wing resonances in two bush-cricket species. One of the studied species, Tryptophyllum spurioculis, a leaf-mimicking species, was discovered during our field course in Ecuador, and ended to be new to science.

Male bush-cricket produce acoustic signals by rubbing the wings together to call females. In the new leaf-mimicking species males produce a call with a frequency of about 14 kHz, and Laser Doppler recordings of wing vibrations show that the wings resonate at about this frequency. Remarkably, this resonance is preserved in the parts of the wings mimicking necrotic leaves, which are in theory not specialised for sound production.

Leaf-mimicking wings have evolved as a form of camouflage against diurnal predators, like birds; but maintaining particular resonances require also strict geometries of the vibrating structures, usually not related to leaf shapes. Therefore, results imply that nature has found a balance between biophysics of wing mechanisms and elaborated wing shapes for camouflage.

Student Views

"Presenting my undergraduate dissertation at the Microbiology Society Annual conference was an amazing opportunity to meet other scientists and network with companies in the scientific community. I now have a job with one of the companies so it was great for my employability too!"

Megan Mortimer, final year Biochemistry Student

"My work experience at Arden Biotechnology Ltd. within the Boole Technology Centre allowed me to develop the lab skills I had learnt at University and perform them in a new professional environment, with the added benefit of being on the University campus. It was the first time I was able to experience working full-time within a lab environment and I was also able to gain new skills which will improve my employability."

Claire Congdon, final year Biology Student

Journey to the Cloud Forests of Ecuador

Students and staff from the School of Life Sciences visited the cloud forests of Ecuador as part of an optional field trip module. Students learned about the conservation, history, flora and fauna of the site and each conducted their own scientific investigation into some aspect of the biology of the area.

They also had the privilege of learning from an Ecuadorian botanist and participating in a walk in the forest at night to search for tree frogs, bush crickets and nocturnal mammals such as the kinkajou (Potos flavus).

Professor Libby John says: "The site is amazing in terms of plants and animals with some highlights including the Oncilla (also known as the little spotted cat) caught on our camera trap, the giant worm (more than 1m long) that came out in the rain and the amazing diversity of plants. We were all very well looked after throughout our stay by the local guides and staff at the Santa Lucia Lodge."

Zoology alumni, Cleo Alper, says: "Going to Ecuador was one of the highlights of my course. “We came up with our own projects when we went out there. Some students focused on bacteria and parasites, some on plants and I did my project on butterflies. "We had to design it all and then we went out and did it. Three of us went out every day with butterfly nets, catching and identifying them – it was so hands-on."

Students captured this image of a mother bear and her cub, using a camera trap during a previous Ecuador field trip.
Many University of Lincoln School of Life Sciences graduates go on to successful careers around the world. 95% of our most recent graduates were in work or further study within six months of finishing their course, according to the latest Destinations of Leavers from Higher Education survey, with 80% of them in professional or management level roles. Many use the skills they have developed to go into science-related careers in business, journalism, public relations and education, while some graduates choose to continue their study at postgraduate level. Our dedicated team of employment professionals can help you to develop the knowledge, skills, confidence and experience to get the best start in your chosen career.

Animal Behaviour and Welfare
Previous graduates have gone on to work in both practical and research roles that involve the management, welfare, training and conservation of companion, farm and wild animals.

Biochemistry
Graduates are highly valued in the medical, pharmaceutical and biotechnology industries. Opportunities also exist in teaching, publishing and scientific sales.

Biology
Biology graduates can enter a range of scientific and non science-based professions in roles in agriculture, biotechnology, plant and animal sciences (including research and development), clinical trials, sales and nutrition) and environmental protection.

Biomedical Science
Several of our graduates have previously gone on to careers in research laboratories, universities, the NHS and the pharmaceutical industry. Graduates have the opportunity to work as qualified biomedical scientists with the NHS on completion of a portfolio of competencies and six to 12 months’ experience in a laboratory.

Bioveterinary Science
Animal-related careers may be found in research and development, technical support and sales of animal pharmaceuticals, vaccine and nutrition products, as well as in animal health, laboratory diagnostics, toxicology, forensics, wildlife parks and zoos. Some of our previous graduates have gone on to study veterinary medicine.

Ecology and Conservation
Graduates have a range of career options which may include teaching, environmental consultancy, applied conservation in the UK or internationally, and science journalism. Graduates may also choose to continue their studies at postgraduate level.

Zoology
Career opportunities for graduates with a Zoology degree exist in fields requiring scientific training, such as teaching, environmental consultancy or journalism. There may also be options in the agricultural and pharmaceutical industries.

Careers and employability guidance
The School has a dedicated Careers & Employability Adviser who runs a drop-in clinic, providing personal guidance appointments, including advice and support on developing your CV, applying for jobs and obtaining paid and voluntary work experience while you study. Additionally, students have the opportunity to complete the Lincoln Award, which enables you to develop transferable skills in addition to those learnt on your course, and to showcase your achievements to prospective employers.

For more detail and the most up-to-date information: www.uolcareers.co.uk

Meet our Alumni

Here, some of our graduates talk about life after Lincoln. Our alumni can continue to have access to tailored support and careers advice. You can benefit from one-to-one careers support in the first year after graduation, as well as access to events, vacancy information and online resources. For the following two years, alumni can continue to access a range of online resources.

Tom Candy
BSc Bovine Veterinary Science and MSc Clinical Animal Behaviour
“I work as a Senior Training and Behaviour Advisor at Dogs Trust. I studied Bovinertary Science and then moved on to postgraduate taught qualification in Clinical Animal Behaviour. I have always wanted to work with animals and whilst studying my undergraduate degree, I had a range of career options outlined to me, and it became more apparent that to enhance my experience and knowledge in the industry I am passionate about, it would be efficient and helpful to take on the MSc programme.

“My work is involves overseeing the training and behaviour teams across Dogs Trust centres in the South West. This includes working with staff and dogs to promote behaviour change and the best possible welfare whilst the dogs are with us, whilst also ensuring a smooth transition for dogs moving into their new homes.

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Meet our Alumni

Here, some of our graduates talk about life after Lincoln. Our alumni can continue to have access to tailored support and careers advice. You can benefit from one-to-one careers support in the first year after graduation, as well as access to events, vacancy information and online resources. For the following two years, alumni can continue to access a range of online resources.

Tom Candy
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Matt Dorrington
BSc (Hons) Biomedical Science
“I am currently a Research Awards and Project Manager at Nottingham University NHS Trust. I develop research proposals with world-leading clinicians and project manage all of the active non-commercial projects, which have a combined worth of more than £15.2 million. In the future, I hope to move into hospital operational management.

“The course gave me a sound knowledge of biological sciences and helped me develop my laboratory skills. The degree also helped me to land my first graduate role as a Biobank Scientist at Nottingham University Hospitals Trust after my final exams.

“The University of Lincoln has a great reputation among employers for developing a knowledgeable and skilled workforce and it is climbing up the league tables. The University has fantastic facilities, societies, accommodation and nightlife. Lincoln itself is also one of the cheapest places to live!

“One of the highlights of my university experience was presenting the closing speech at the School of Life Sciences graduation ceremony to an audience of more than 3,000 at Lincoln Cathedral. I had always disliked public speaking but since doing that speech, it now comes easily.”

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UV Radiation on Flowers and Plant Life

Masters by Research student, Liberty Gray, has been looking at the impact of ultraviolet (UV-B) radiation on flowers. The project, funded by the Douglas Bomford Trust, combined laboratory experiments with data collected from herbarium collections including Kew, the Natural History Museum and the Linnean Society to look at how global changes in UV-B may have altered flower colouration.

High levels of UV-B rays are well known to cause damage to animals and plants, for example causing sunburn. Flower pollen can be damaged by high levels of UV-B and so some species of plant have flowers containing an absorbing area that acts as a sort of sun block and reduces the chances of pollen being damaged.

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Dr Charles Deeming

Dr Charles Deeming is a long-established member of the School of Life Sciences and has been Programme Leader for the BSc Zoology course since its inception. Alongside teaching on a range of zoological topics, Charles has a wide range of research interests and experience. In particular, he has worked on developing a better understanding of avian, reptilian and dinosaur eggs and incubation for over 35 years. Current research, which involves both postgraduate and undergraduate student researchers, is primarily focussed around plasticity in bird nest construction. Ultimately, the goal is to develop an understanding of how evolution has shaped construction behaviour, and how this affects the thermal, mechanical and hydrological properties of a bird nest in its role as the place for incubation.

Swans in Lincoln

The Mute Swan population (Cygnus olor) inhabiting the Brayford Pool and associated waterways in the centre of Lincoln is an important part of the city’s cultural heritage. In recent years, the number of swans on the Brayford has been declining and a School of Life Sciences project, led by Dr Jenny Dunn and funded by the University, is trying to understand the reasons behind this decline.

Most of the swans living on the waterways in and around Lincoln now carry an individually numbered yellow colour ring on one leg. This means that each swan can be identified without disturbing the bird and so we can monitor the survival and movements of individual swans. Students are encouraged to become involved in monitoring the swans, all of which were originally ringed within walking distance of the University, reporting when and where they see the birds and observing and recording their behaviour. This means that students can become involved with a long-term study of birds on their doorstep, with opportunities to carry out their own study of the population during their final year research project.

As well as monitoring the movements of birds by reading and recording the number on their colour ring (above), we also monitor the health of the birds by analysing blood samples.

Dr Lan Qie

Dr Lan Qie recently joined the School of Life Sciences. With a diverse background bridging engineering to ecology, and the Global East to West, she is passionate about bringing multidisciplinary, multicultural perspectives into her teaching here at Lincoln, to help our students develop the skills portfolio for a range of careers to tackle complex environmental challenges.

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Academic Research

Professor Matthew R Goddard

Professor of Population and Evolutionary Biology

Microscopic bacteria, fungi and invertebrates that comprise ‘microbiomes’ are essential components of all ecosystems. Agricultural ecosystems are essential to human survival as they provide key services and outputs to feed the world’s ever-increasing population. It is clear going forward that we need to look after both agricultural ecosystems and wider un-managed natural ecosystems which support them if we are to grow enough food to feed the ever-increasing demand.

We need to develop sustainable ways to farm that do not significantly degrade the environment. Agricultural microbiomes play key roles in crop and livestock diseases as well as positive roles in health and sustainability. One way that science can help further develop sustainable farming methods is to understand better entire agricultural (and wider) ecosystems and the roles that microbiomes play in ecosystem health. Such understanding then provides an opportunity to optimise and enhance agricultural microbiomes to prevent disease and increase health in ways that do not rely on the use of synthetic pesticides. This one major area that my research focuses on, and this provides students and research staff opportunities to tackle significant problems and play a part in changing the world through research.

I am currently a Professor at the School of Life Sciences, and the path that brought me here started at The University of North Wales, Bangor with a BSc in Marine Biology and Applied Zoology, then a Post-graduate research diploma in medical microbiology at the University of Leicester, then a PhD and Post-doctoral Fellow position at Imperial College at Silwood Park in Evolutionary and ecological genetics and population biology, leading to a Faculty position at the University of Auckland in New Zealand, and finally to the University of Lincoln. Like many other staff at the University we bring a wealth of experience from different places and academic disciplines to our work at the University.
Preventing Kidney Disease in Diabetes

Understanding and ultimately preventing kidney damage in people with diabetes, is a key aim for Dr Claire Hills at the University of Lincoln, whose research aims to better understand the sub-cellular mechanisms that regulate how people with diabetes can develop diabetic nephropathy (kidney disease).

Almost one third of all patients with diabetes progressively develop diabetic nephropathy within 10-30 years of the onset of disease and this accounts for almost a quarter of those entering nephropathy within 10-to-30 years of diabetes. Given the almost two-thirds of patients with diabetes can develop diabetic nephropathy (kidney disease).

Almost one third of all patients with diabetes progressively develop diabetic nephropathy within 10-30 years of the onset of disease and this accounts for almost a quarter of those entering nephropathy within 10-to-30 years of diabetes. Given the increasing prevalence of the disease, the incidence of nephropathy in people with diabetes will continue to rise. However, lack of a basic understanding of this debilitating condition has hindered discovery of a suitable treatment. Dr Hills, who has more than 20 years’ experience in diabetes research, is currently investigating how high levels of sugar and an important down-stream molecule called Transforming Growth Factor-beta which promotes scar formation in the diabetic kidney, can cause damage and loss of kidney function in individuals with this debilitating disease.

To identify new treatments in our fight against this debilitating condition, Dr Hills is working to understand the basic mechanisms that cause the inflammation and scarring often seen in the diabetic kidney. Dr Hills said: "The theme of my research concentrates on cell-to-cell coupling, cell-to-cell communication and investigating the multiple ways that cells talk to each other to improve function. Cells lining the surface of the small tubes of the kidney normally work together to ensure appropriate function. In diabetes, these cells become bathed in high concentrations of sugar, which triggers the cells to talk 'nonsense' to each other and work independently. We believe that poor communication between diseased cells leads to kidney damage and contributes to kidney failure."

Dr Hills has recently published novel findings confirming that Connexin-43, a protein that is instrumental in ensuring that cells can successfully talk to each other and work efficiently, mediates loss of communication in the kidneys of people with advanced diabetic kidney disease (Hills CE et al, 2018). Through generous support received from charities including Diabetes UK, Diabetes Research and Wellness Foundation and the European Association or the Study of Diabetology, Dr Hills is now working with a host of basic scientists and clinical colleagues, to determine if targeting this protein therapeutically, holds future promise in treating this secondary complication.

Dr Hills commented: "The University of Lincoln has huge drive and aspirations in research and it is very exciting to be able to contribute to what can be achieved in the biomedical field. I am very keen to put something back into the community and routinely invited local Diabetes UK groups to visit our laboratories. As an institution we are keen to develop that transitional link between science, clinicians and end users. The ethos of from bench to bedside is intrinsic to the University’s research philosophy.

Poultry Probiotic to Tackle Global Disease in Antibiotic Fight

A probiotic aimed at eliminating a disease which costs the world poultry industry $6 billion a year is being developed by a Lincoln/China collaboration in the fight against a global antibiotic crisis. The disease – Clostridium perfringens – is currently controlled with antibiotics. But there is growing pressure to stop this method in the face of a rise in antimicrobial resistance (AMR) in humans.

Dr Ron Dixon, a microbiologist at the University of Lincoln, UK, and Dr Joseph Brown from Arden Biotechnology, are working with the Jiangsu Academy of Agricultural Sciences in China to develop the probiotic. The project has been awarded a £1.5m prize by the Department of Health and Social Care’s AMR Innovation Fund (SANRF) to support the scheme, managed by Innovate UK, and help reduce the use of antibiotics in future generations. Arden Biotechnology based at Lincoln Science & Innovation Park, is leading the UK team developing the probiotic. The biotech company was founded following a three-year Knowledge Transfer Partnership between the University and Arden Woodshavings, supported by Innovate UK.

The World Health Organization estimates that antibiotic treatments add an average of 20 years to all of our lives. But in the 80 years since the discovery of penicillin, overuse of antibiotics especially in agriculture and food animal production has put pressure on bacteria to evolve resistance, leading to the emergence of untreatable superbugs that threaten the basis of modern medicine.

Could Climate Change Cause Infertility?

A number of plant and animal species could find it increasingly difficult to reproduce if climate change worsens and global temperatures become more extreme – a stark warning highlighted by new scientific research.

The scientific community has long held an understanding about the effect of temperature on sperm production in mammals, but this new study sheds light on how spermatogenesis in insects is hampered at extreme temperatures. In the new scientific paper, published in the Journal of Evolutionary Biology, and an academic letter recently published in Trends in Ecology & Evolution, University of Lincoln evolutionary ecologist Dr Graziella Iossa and behavioural ecologist Dr Paul Eady explain how the temperature at which an animal develops can impact its reproductive behaviour and physiology.

Dr Iossa and Dr Eady are among the first scientists to examine how different temperatures impact on the reproductive behaviour of a species and thus fertility.

Sperm bundles of Plodia interpunctella, the Indian meal moth, captured by phase-contrast illumination using a binocular microscope.

Dr Iossa and Dr Eady have been leading research in this area for a number of years. Their most recent work, published in the Journal of Evolutionary Biology, examined sperm production and the copulatory behaviour of male and female Indian meal moths. This species of moth produces two types of sperm – a fertilizing eupyrene and a non-fertilizing aepyrene sperm. The production of both sperm types is hampered by rising temperatures.

Studies looking at the impact of climate change on species have looked so far at the ability of species to survive under heat stress. Dr Iossa and Dr Eady are among the first scientists to examine how different temperatures impact on the reproductive behaviour of a species and thus fertility.
Find out More

There are many ways for you to engage with the School of Life Sciences and the University of Lincoln. Whether you want to visit us and take a look around, join our online community or simply find out more about the opportunities available, we are here to help. Call us on +44 (0)1522 886644, email enquiries@lincoln.ac.uk or read on to find out ways to get in touch.

Open Days
The University holds Open Days throughout the year, which offer a great opportunity for you and your family to explore our campus, speak to lecturers and find out more about student life at Lincoln. To find out more and to book your place, please visit: www.lincoln.ac.uk/opendays

Postgraduate Open Days and Taster Days
At a postgraduate masterclass there are opportunities to take part in a lecture or workshop as well as to meet our academics and other prospective students.

Social media
To keep up-to-date with the latest news and information from the University, join our online communities. See opposite for our handles, names and addresses.

International students
The University of Lincoln aims to provide a vibrant and dynamic atmosphere for international students who are looking to study in the UK. Please visit www.lincoln.ac.uk/international for more information.

We want you to have all the information you need to make an informed decision when you are considering which courses and Higher Education providers to apply to.
We encourage you to visit our website for the most comprehensive information, as well as looking at our prospectus, course brochures and visiting us at an Open Day.
The course listings on our website provide detailed information including a full list of core and optional modules, details on fees, and information on any additional costs that you might incur on a particular degree, as well as accommodation costs. Information about the way you will be assessed on your course, where you will study, the staff involved in your teaching, entry requirements and application details can also be found on our website.

For full admissions terms and conditions, please visit: www.lincoln.ac.uk/terms

The front cover image of a Fern was taken by George Young, the plant image on page 4 was taken by Megan Pritchard, and the frog image on page 6 was taken by Andrew Baker. These images were taken by current and former students as part of a photography competition within the School of Life Sciences.

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