Global Change Ecology and Evolution MSc

COURSE DETAILS

- Full-time: 12 months

KEY DATES

- Apply by: 29 August 2025
- Starts: 22 September 2025

Course overview

In the face of unprecedented global environmental challenges, there is an urgent need to train scientists that can preserve our natural world and mitigate the impact of human activities on our ecosystems. This MSc is designed to equip you with the skills and knowledge to tackle this Global Change crisis.

INTRODUCTION

The MSc in Global Change Ecology and Evolution provides a comprehensive understanding of the anthropogenic stressors affecting biodiversity and ecosystems. Students critically assess ecological and evolutionary responses to environmental change and explore strategies to mitigate human impact. The program develops key skills in communication, problem-solving, statistics, and experimental design, along with advanced quantitative and 'omics techniques, highly valued in research, conservation, policy, and industry.

Taught by leading experts from Liverpool's Department of Evolution, Ecology, and Behaviour (DEEB), the course utilizes specialised facilities, including the Buxton Climate Change Lab, Brian Moss Mesocosm Facility, Henry Wellcome Laboratory of Mammalian Biology and Evolution, and the NERC Environmental 'Omics Facility (NEOF). These resources provide exceptional hands-on learning opportunities.

Through a blend of theoretical coursework and practical experiences, including a 10-day overseas field course (a UK option is also available), graduates will be well equipped to develop evidence-based solutions for global change related challenges.

WHO IS THIS COURSE FOR?

This programme is aimed at graduates with a bachelors degree in a biological sciences area and who are interested in evolution, ecology and conservation or global change biology.

WHAT YOU'LL LEARN

- The diversity of anthropogenic factors impacting natural populations.
- An understanding of fundamental processes in ecology and evolution that dictate responses to environmental change from the individual to the ecosystem, including interactions between and limits to these processes
- The current evidence base underpinning global change biology and key knowledge gaps
- Knowledge and skills relating to ‘omics and other cutting-edge approaches used to study global change biology.
- Field skills for quantifying and monitoring biodiversity
- Understanding of models and data used to understand and predict biological responses to global change.
- How to plan, execute and present a major piece of original, independent research in the laboratory and in the field.
- Experimental design and data skills in R
- Science communication for a variety of audiences

Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

SEMESTER ONE

This master's programme provides a comprehensive overview of the anthropogenic stressors impacting the natural world and the research and intervention strategies designed to mitigate these effects. Students will explore the ecological and evolutionary responses to various stressors and critically evaluate mitigation strategies for human activities.

The programme offers a deep understanding of ecology and evolutionary biology applied to real-world challenges, while enhancing skills in communication, problem-solving, statistics, and experimental design. Additionally, students will gain hands-on field skills for quantifying biodiversity across different ecosystems and taxa, alongside developing quantitative expertise in 'omics and other advanced approaches, essential for careers in research, conservation, policy, and industry.

COMPULSORY MODULES

BIOLOGICAL DATA SKILLS (LIFE707)

Credits: 15 / Semester: semester 1

Data skills are essential for a career in modern biology. Biological studies increasingly involve the generation of large or complex sets of data, and the ability to analyse data is a core component of a successful biologist's skill set. Digital fluency is also required more widely outside biological research and a grounding in data analysis is in demand by a broad range of employers. Here you will learn the ability to visualise data, critically test hypotheses, and to interpret and present results.

The learning and teaching materials are delivered as an online set of resources (available through Canvas) coupled with computer-based practical workshops. The module will also introduce students to the powerful open access statistical software package, R.

The module will be assessed by a written data analysis report and an open-book exam

For any students studying off-campus – due to a placement in industry or studying at an overseas University – on-line drop-in sessions will be provided instead of the practical workshops.

INTRODUCTION TO IVES RESEARCH (IVES701)

Credits: 30 / Semester: semester 1

This module will prepare students to undertake their MSc research project. Students will be taught with introductory lectures to support assessments and how best to develop skills and guided on improving their practical skills (lab-based and non-lab) by discussion with their supervisors based on the skills gap. Students will work in collaboration with their research project supervisor to devise a plan of work aimed at developing the knowledge and skills that will be required for the MSc research project. Students are expected to work independently, guided by approximately weekly meetings with their supervisor. Students will create a research development needs report and will determine how to address gaps in practical skills while reflecting on how and where new skills have been obtained. Students will also write a literature review on a topic closely related to their planned research project and record a video summary to explain the research objectives and the topic's significance to a lay audience. Student learning will be supported by regular meetings with the supervisor who will guide their completion of the developmental needs report. By the end of this module, students will be prepared to carry out their MSc research project.

ECOLOGY IN THE ANTHROPOCENE (IVES713)

Credits: 15 / Semester: semester 1

The module will provide an advanced understanding of how ecological systems are responding to major human drivers of environmental change. The key drivers that will be covered include i) climate change, ii) land-use change, iii) over-exploitation, iv) pollution, and v) biological invasions. Cutting across these five key themes and their interactions, students will explore fundamental processes that underpin ecological responses to environmental change, the limits to ecological adaptation, and how to predict ecological responses.

This research-led module is one of three core modules on the MSc Global Change Ecology and Evolution Programme, and it will be delivered using a mixture of lectures, workshops, and student-led discussions exploring the state-of-the-art of human-impacted ecology. To ensure all students are at the same level of ecological understanding, teaching will include revision of core ecological concepts and approaches.

Authentic assessment is delivered through two coursework assignments: i) a 'pitch-to-peers' presentation of an evidence-based solution to a global change impact scenario, and ii) an evidenced-based report on prioritisation of non-native species for eradication. These assignments are designed so that students can demonstrate their critical appraisal, synthesis, and communication skills.

EVOLUTION IN THE ANTHROPOCENE (IVES712)

Credits: 15 / Semester: semester 1

This module serves as a focal point for students on the Global Change Ecology and Evolution MSc Programme and might also be taken by other MSc, MBioSci and MRes students whose interests include evolutionary biology. This research-led course bridges the gap between fundamental evolutionary theory and practical applications in fields including conservation, agriculture, biotechnology and public health. Students will gain theoretical knowledge and skills required to understand how evolutionary processes shape population responses to the main human drivers of environmental change, including i) climate change, ii) land-use change, iii) over-exploitation, iv) pollution, and v) biological invasions, and the ability to apply this knowledge to real-world biological problems.

The course is taught by experts in the field using active learning methods that include lectures, student-led seminars, and in-class debates. Directed key-reading and other learning resources will be provided in a VLE that develops digital fluency and encourages assimilation and appraisal of the module content. The module is assessed using two coursework assignments that are designed to demonstrate depth of understanding and the ability to apply knowledge to real-world biological scenarios.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

SEMESTER TWO

This master's programme provides a comprehensive overview of the anthropogenic stressors impacting the natural world and the research and intervention strategies designed to mitigate these effects. Students will explore the ecological and evolutionary responses to various stressors and critically evaluate mitigation strategies for human activities.

The programme offers a deep understanding of ecology and evolutionary biology applied to real-world challenges, while enhancing skills in communication, problem-solving, statistics, and experimental design. Additionally, students will gain hands-on field skills for quantifying biodiversity across different ecosystems and taxa, alongside developing quantitative expertise in 'omics and other advanced approaches, essential for careers in research, conservation, policy, and industry.

COMPULSORY MODULES

UNDERSTANDING MODELS AND DATA (LIFE762)

Credits: 15 / Semester: semester 2

In recent years, data and statistics have become a feature of emerging public health situations to an extent that is historically unprecedented. Scientists, policy makers and the public have had to become confident consumers of numbers and model predictions. The actors involved in the management of infectious diseases are not necessarily modelling specialists themselves, but nevertheless need to interpret statistical and modelling results and be aware of their limitations.

This module will train students to understand what can and cannot be learnt from data and modelling results. The module does not assume that students are experts in statistics or modelling. Students will receive training in how to use simple visualisations and analysis to gain a robust understanding of key patterns in data, and how to recognise common pitfalls in data interpretation. Students will learn the distinction between different approaches in statistics and quantitative modelling, and when it is appropriate to use them. Particular attention will be paid to the management of uncertainty in model predictions. The module will equip students to interpret critically the quantitative results in scientific papers and reports, and how to use them to inform the management of infectious diseases. The module will be assessed by the combination of a presentation and a short report, in the spirit of authentic assessment.

SKILLS FOR GLOBAL CHANGE BIOLOGY (IVES725)

Credits: 15 / Semester: semester 2

New technologies such as genomics and remote monitoring are transforming our ability to rapidly understand the biodiversity of populations and ecosystems, and how these are responding to environmental change. This module will enable students to critically evaluate the opportunities and limitations of such technology, develop the skills to analyse and integrate complex data from field and experimental studies, and empower students with the ability to apply these skills to create and develop novel solutions to problems faced by societies living on a changing planet. The module is delivered through active learning in computer workshops, peer-to-peer learning and field-based practicals. Students are assessed on their ability to develop and present solutions to authentic, real-world problems. This module is a mandatory module for the Global Change Ecology and Evolution MSc Programme and may also be suitable for students on other programmes.

INTRODUCTION TO IVES RESEARCH (IVES701)

Credits: 30 / Semester: semester 1

This module will prepare students to undertake their MSc research project. Students will be taught with introductory lectures to support assessments and how best to develop skills and guided on improving their practical skills (lab-based and non-lab) by discussion with their supervisors based on the skills gap. Students will work in collaboration with their research project supervisor to devise a plan of work aimed at developing the knowledge and skills that will be required for the MSc research project. Students are expected to work independently, guided by approximately weekly meetings with their supervisor. Students will create a research development needs report and will determine how to address gaps in practical skills while reflecting on how and where new skills have been obtained. Students will also write a literature review on a topic closely related to their planned research project and record a video summary to explain the research objectives and the topic's significance to a lay audience. Student learning will be supported by regular meetings with the supervisor who will guide their completion of the developmental needs report. By the end of this module, students will be prepared to carry out their MSc research project.

GLOBAL CHANGE BIOLOGY FIELD COURSE (IVES726)

Credits: 15 / Semester: semester 2

This module serves as a focal point for students on the Global Change Ecology and Evolution MSc Programme and might also be taken by other MSc, MBioSci and MRes students with an interest in field biology.

This 2-week residential field course aims to provide practical experience and hands-on training in a range of field techniques for quantifying biodiversity in different ecosystems and different taxons. Students will learn to identify basic groups of taxa, with emphasis on insects, mammals, birds, and plants, design and implement field surveys, use various sampling methods, and apply statistical tools to analyse and interpret biodiversity data.

The course is taught by experts from Liverpool and local guides using lectures, seminars, discussion groups, staff-led field visits and student-executed research projects in the field. Directed key-reading and other learning resources will be provided in a VLE and throughout the course.

The module is assessed using a presentation and two coursework assignments that are designed to demonstrate depth of understanding and the ability to apply knowledge to real-world biological scenarios.

In the event of unforeseen circumstances that prevent either individual students attending, eg illness shortly before departure, or cancellation of the trip, e.g. on FCO and/or University insurer advice, local alternate assessment exercises will be made available. These will predominantly be library-based but might also involve field visits where possible to practice field skills.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

FINAL PROJECT

COMPULSORY MODULES

IVES RESEARCH PROJECT (IVES702)

Credits: 60 / Semester: whole session

This module offers students the exciting opportunity to conduct an independent research project related to their chosen area of study under academic guidance. It is designed to develop key skills and aims to foster independence in students and support them in developing their organisation, critical thinking and analytical skills, consideration of impact, as well their communication and academic writing skills.
Students will create a project plan of their proposed work at the start of the project, and will present their work orally to their peers, as well as producing a final scientific project report in the style of a research paper. Students will also be assessed on their approach to their laboratory, field or computer-based work during the project.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

HOW YOU'LL LEARN

The program integrates lectures, workshops, and student-led seminars to provide foundational knowledge and cultivate critical thinking, problem-solving, and real-world application.

Lectures are supplemented by independent study and interactive elements like quizzes and group work, while workshops focus on ecological and conservation challenges posed by global environmental change, encouraging collaborative solutions in smaller groups.

A ‘Journal Club’ format enhances engagement with current research, promoting critical analysis and reflective learning.

Field courses offer experiential learning through hands-on practice, demonstrations, and independent research in real-world contexts.

All students will also undertake an independent research project under the supervision of an Academic on a research project related to their specific programme of study. Projects are generally either lab, field or computer based (or a combination).

HOW YOU'RE ASSESSED

Assessment of knowledge, practical skills, and transferable skills in the MSc in Global Change Ecology and Evolution emphasizes authentic assessment methods that mirror real-world scenarios and professional tasks.

This includes practical and project reports, essays, workbooks, presentations, and data handling and interpretation tasks. These assessments are designed to provide students with practical experience and enhance their readiness for professional challenges.

LIVERPOOL HALLMARKS

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

Careers and employability

We envisage an increasing demand for graduates that understand how the natural world responds to anthropogenic challenges within research institutes, government departments, conservation bodies and charities, agriculture, industry, scientific communication and teaching.

Graduation from the Global Change Ecology & Evolution MSc programme will provide lifelong learning skills, scientific training and opportunity for employment. These opportunities include diverse careers spanning scientific research and teaching, consultancy, industry and NGOs where the skills can be applied in different and bespoke ways. Progression in academic and scientific research careers will be enabled by enhancing research skills for PhD and beyond, as well as industry.
The skills and expertise that students develop over the course of the programme will support a transition to a career as a research scientist, environmental consultant, environmental agency, environmental education officer, higher education lecturer, nature conservation officer or science writer

Career support from day one to graduation and beyond

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Career planning

Our Careers Studio and career coaches can provide tailored support for your future plans.

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From education to employment

Employability in your curriculum for a successful transition

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Networking events

Make meaningful connections with like-minded professionals

YOUR FUTURE

The MSc Global Change Ecology and Evolution prepares you for a diversity of job opportunities in the public and private sector. Potential career pathways include, but are not limited to, the roles of:

- PhD Student/ Academia
- Scientific or policy positions in public sector agencies, non-government organisations or charities
- Scientist employed in private sector organisations with a focus on bioscience, environment, and public and veterinary health
- Environmental consultant

- Conservation Officer
- Scientific writer

Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

TUITION FEES

UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)	
Full-time place, per year	£13,300

International fees	
Full-time place, per year	£28,300

Fees stated are for the 2025-26 academic year.
Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support.

- You can pay your tuition fees in instalments.
- All or part of your tuition fees can be funded by external sponsorship.
- International applicants who accept an offer of a place will need to pay a tuition fee deposit.

If you're a UK national, or have settled status in the UK, you may be eligible to apply for a Postgraduate Loan worth up to £12,167 to help with course fees and living costs. **Learn more about fees and funding**.

ADDITIONAL COSTS

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This could include buying a laptop, books, or stationery.

Find out more about the additional study costs that may apply to this course.

SCHOLARSHIPS AND BURSARIES

We offer a range of scholarships and bursaries that could help pay your tuition and living expenses.

We've set the country or region your qualifications are from as United Kingdom. Change it here

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CHILEAN NATIONAL AGENCY FOR RESEARCH AND DEVELOPMENT (ANID) SCHOLARSHIP

- International students
- Chile

If you're a Chilean student joining a master's degree, you could be eligible to apply for a 20% discount on your tuition fees with a Chilean National Agency for Research and Development (ANID) Scholarship. Scholarship.

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CHEVENING SCHOLARSHIPS

- International students
- Albania
- Algeria
- Anguilla
- Antigua and Barbuda
- Argentina
- Australia
- Azerbaijan
- Bangladesh
- Barbados
- Belize
- Bolivia
- Brazil
- British Virgin Islands
- Brunei
- Canada
- Cayman Islands
- Chile
- China
- Columbia
- Costa Rica
- Cuba
- Dominica
- Ecuador
- Egypt
- El Salvador
- Ghana
- Guatemala
- Guyana
- Honduras
- Hong Kong
- Iceland
- India

- Indonesia
- Iraq
- Jamaica
- Japan
- Jordan
- Kazakhstan
- Kenya
- Libya
- Malaysia
- Mauritius
- Mexico
- Moldova
- Mongolia
- Montserrat
- Morocco
- Nepal
- New Zealand
- Nicaragua
- Nigeria
- Pakistan
- Panama
- Paraguay
- Peru
- Philippines
- Russia
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and The Grenadines
- Serbia
- Singapore
- South Africa
- South Korea
- South Sudan
- Sri Lanka
- Sudan
- Taiwan
- Tanzania
- Thailand
- Trinidad and Tobago
- Turkey
- Turks and Caicos Islands
- Uganda
- Ukraine
- Uruguay
- Venezuela
- Vietnam
- Zimbabwe

If you're an international student from an eligible country, joining a one-year master's course, you could be eligible to apply for a Chevening Scholarship. If your application is successful, you could expect to have your master's fees paid, up to a maximum of £18,000, and receive additional help with living costs.

- ## CONSEJO NACIONAL DE CIENCIA Y TECNOLOGIA (CONACYT) AWARD

  - International students
  - Mexico

  If you're a Mexican student joining a master's degree, you could be eligible to apply for a 30% discount on your tuition fees with a CONACyT Award.

- ## FUND FOR THE DEVELOPMENT OF HUMAN RESOURCES (FIDERH) AWARD

  - International students
  - Mexico

  If you're a Mexican student joining a master's degree and you're in receipt of a FIDERH graduate loan, you could be eligible to benefit from a 20% discount on your tuition fees with a FIDERH Award.

- ## FUNED AWARD

  - International students
  - Mexico

  If you're a Mexican student joining a master's degree and you're in receipt of a FUNED loan, you can apply to be considered for a 20% tuition fee discount. A total of up to 50 awards will be available to master's and PhD students per academic year.

- ## FUNED SCHOLARSHIP FOR WOMEN IN STEM SUBJECTS

  - International students
  - Mexico

  If you're a female Mexican student joining an eligible master's course in a science, technology, engineering or maths (STEM) subject and you're in receipt of a FUNED loan, you can apply to be considered for a 25% tuition fee discount. Up to five awards are available in each academic year.

- ## HRH PRINCESS SIRINDHORN UNIVERSITY OF LIVERPOOL SCHOLARSHIP (THAILAND)

  - International students
  - Thailand

  If you're a student from Thailand joining a one-year master's degree, you might be eligible to apply to have your tuition fees paid in full and receive help with living costs. One award is available and only students who are new to the University will be considered.

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JOHN LENNON MEMORIAL SCHOLARSHIP

- Home students

If you're a UK student, either born in or with strong family connections to Merseyside, you could be eligible to apply for a fee discount of up to £4,500. You'll need to demonstrate an active interest in global, community and environmental issues to be considered.

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JUVENTUDESGTO SCHOLARSHIP

- International students
- Mexico

If you're a resident of the state of Guanajuato in Mexico joining a master's degree, you could be eligible for a 10% discount on your tuition fees with a JuventudEsGto Scholarship.

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KAPLAN DIGITAL PATHWAYS EXCELLENCE SCHOLARSHIP

- International students

Completed a Kaplan Digital Pathways Pre-Master's? We're offering a £5,000 fee discount off the first year of master's study for a maximum of two high achieving students joining one of our non-clinical master's courses from an online Kaplan Pre-Master's programme.

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MARSHALL SCHOLARSHIP

- International students
- United States

If you're a USA student joining an eligible master's with us, you could be eligible to apply for a Marshall Scholarship. If your application is successful, your master's tuition fees will be paid in full. One Marshall Scholarship for master's study is available in each academic year.

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POSTGRADUATE OPPORTUNITY BURSARY

- Home students

If you're a UK University of Liverpool graduate joining a master's degree with us, you could be eligible to receive £3,000 off your tuition fees. You must have graduated in the last two years and received a widening access scholarship during your undergraduate studies.

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SPORT LIVERPOOL PERFORMANCE PROGRAMME

- Home and international students

Apply to receive tailored training support to enhance your sporting performance. Our athlete support package includes a range of benefits, from bespoke strength and conditioning training to physiotherapy sessions and one-to-one nutritional advice.

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TURKISH MINISTRY OF EDUCATION SCHOLARSHIP

- International students

- Turkey

If you're a Turkish student joining a master's degree, you could be eligible to apply for a 20% discount on your tuition fees with a Turkish Ministry of Education Scholarship.

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UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE EXCELLENCE SCHOLARSHIP

- International students

Completed a Pre-Master's at University of Liverpool International College (UoLIC)? We're offering a £5,000 fee discount off the first year of master's study to some of the highest achieving students joining one of our non-clinical master's courses from UoLIC.

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UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE IMPACT PROGRESSION SCHOLARSHIPS

- International students

If you're a University of Liverpool International College student awarded a Kaplan Impact Scholarship, we'll also consider you for an Impact Progression Scholarship. If selected, you'll receive a fee discount worth £3,000 off the first year of your master's course.

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VICE-CHANCELLOR'S INTERNATIONAL ATTAINMENT SCHOLARSHIP FOR MAINLAND CHINA

- International students
- China

Are you a high-achieving graduate from the People's Republic of China with a degree from a Chinese university? You could be eligible to apply for a £5,000 fee discount if you're joining an eligible master's course. Up to 15 eligible students will receive this scholarship.

Entry requirements

The qualifications and exam results you'll need to apply for this course.

Your qualification	**Requirements** About our typical entry requirements
GCSE	4/C in English and 4/C in Mathematics
Postgraduate entry requirements	We accept a 2:2 honours degree from a UK university, or an equivalent academic qualification from a similar non-UK institution. This degree should be in a Biological Sciences subject. Students with a degree in an Environmental Sciences subject may also be accepted if there is sufficient biology-related scientific content acceptable to the programme director. Students who do not meet these criteria may still be considered if you hold significant professional experience in conservation or environmental industries.
International qualifications	Many countries have a different education system to that of the UK, meaning your qualifications may not meet our entry requirements. Completing your Foundation Certificate, such as that offered by the University of Liverpool International College, means you're guaranteed a place on your chosen course.

THE ORIGINAL REDBRICK