Programme Information		
Programme Title	Programme Code	HECoS Code
MSc Living Planet with Computational Methods in Ecology and Evolution MSc Living Planet with Ecological Applications MSc Living Planet with Ecology, Evolution and Conservation MSc Taxonomy, Biodiversity and Evolution	LPCE LPEA LPEC LPTB	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MSc*	1 Calendar year (12 months)	Full-time	Annually in October	90	180
PG Certificate – LPCEC, LCEAC, LPECC, LBTBC	N/A	N/A	**	30	60

* You must apply to and join the MSc
** The PG Certificate is an exit award and is not available for entry. The title of this exit award will include the specialism of the course. It may be awarded at the discretion of the Board of Examiners.

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Natural Sciences
Teaching Institution	Imperial College London	Department	Life Sciences
Associateship	Diploma of Imperial College	Main Location(s) of Study	Silwood Park Campus Natural History Museum (for option: **MSc Taxonomy Biodiversity and Evolution**)
External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points		N/A	
FHEQ Level		Level 7	
EHEA Level		2nd Cycle	
External Accreditor(s) (if applicable)			
External Accreditor 1:	N/A		
Accreditation received:	N/A	Accreditation renewal:	N/A
Collaborative Provision			

Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
Natural History Museum (for option: **MSc Taxonomy, Biodiversity and Evolution**)	Collaborative degree programme agreement	Sept 2017	Sept 2022 (currently in process of being renewed to 2028)

Specification Details	
Programme Lead	Prof. Robert Ewers
Student cohorts covered by specification	2024-25 entry
Date of introduction of programme	October 24
Date of programme specification/revision	February 23

Programme Overview

The MSc Living Planet will equip you to tackle the great environmental challenges facing the world. We do this by providing training on ecological systems, the environment and biodiversity, and by developing the research skills you will need to develop science-based understanding and interventions.

Our diverse programme has a heavy emphasis on practicals and learning-through-research. Based primarily at Imperial's Silwood Park Campus, an internationally renowned centre of excellence for ecological and evolutionary research, our course covers a very wide range of topics, each taught by leading researchers in that field.

This course will teach you to think like a scientist through its research-intensive curriculum. Our training is designed to help you develop personal attributes that are desired by employers, including quantitative methods and data science, problem-solving, project management and data communication skills. All of the skills taught on this course are transferrable, meaning the course will open a wide set of opportunities for a career in science and in conservation and natural resource management. Many alumni use this course as a stepping stone to a PhD, while others have found employment opportunities as research assistants and technicians in academia and with NGOs, as rangers and site managers at government agencies and protected areas, and as science communicators and school teachers.

You will first undertake compulsory training designed to give you the core skills needed to understand, interpret and conduct independent research. This training is conducted in field and computing environments and will introduce you to modern data collection and experimental methods, along with state-of-the-art techniques in data science, geographic information systems (GIS), genomics and bioinformatics, and data interpretation.

The MSc course offers a wider range of instruction across a large set of research areas, allowing you to gain a clear insight into your own research interests. These are taught by internationally recognised experts who use their own research as model systems to illustrate the fundamental scientific principles that underpin biodiversity science, environmental research and management. The topical expertise you will develop during this period is the main difference between this programme and the MRes programme we also offer.

You will finish the year working on an individual research project. You will work with staff to develop your own ideas for an individual research project, which can be conducted on any biodiversity, ecological or environmental topic. You will be encouraged to follow your interests, and you will have opportunities to work with researchers inside and outside of Imperial College London that match your personal career goals. This is a feature appreciated by staff and students alike – an opportunity to develop new collaborations and strengthen existing ones, and make new interdisciplinary science happen.

You will be supported throughout the course by your peers, by research-active academics, Teaching Fellows, and Graduate Teaching Assistants. Our course is nested within the Georgina Mace Centre for the Living Planet that promotes interdisciplinary research and partnerships, bringing together natural scientists, engineers, mathematicians, medics, economists and social scientists.

Students on **MSc Living Planet with Computational Methods in Ecology and Evolution** will learn quantitative methods and biological concepts together, through application of mathematical modelling, computing, and data science methods to biological research problems. Students finish with a dedicated research project. This course is suitable for life scientists wishing to expand their quantitative skills in light of the increasingly quantitative nature of modern biology, and for physical scientists (mathematicians, physicists, statisticians, computer scientists) with a strong interest in environmental science.

Students on **MSc Living Planet with Ecological Applications** will receive broad training in the applications of ecological and evolutionary theory and skills to real world problems. At the beginning of the course you will have the option to choose between focussing on developing your computational or field skills. The course is designed and taught in partnership with leading industry and non-governmental organisations active in the field of ecological applications and conservation that can include CABI, Surrey Wildlife Trust, and Syngenta. Students finish with a dedicated research project. This course is suitable for scientists planning a career in in applied ecology and conservation.

Students on **MSc Living Planet with Ecology, Evolution and Conservation** will engage in an interdisciplinary course providing broad training on fundamental biological concepts and theory, and their application to evolutionary ecology, conservation and biodiversity science. At the beginning of the course you will have the option to choose between focussing on developing your computational or field skills. The course offers a wider range of instruction across a large set of research areas, allowing you to gain a clear insight into your own research interests from a selection of current research topics. Students finish with a dedicated research project. This course is suitable for students with broad interests.

Students on **MSc Living Planet with Research Methods in Ecology** will gain hands on experience in a wide suite of technologies, sensors and project management skills used in modern ecological research. At the beginning of the course you will have the option to choose between focussing on developing your computational or field skills. The course takes a learning-by-doing approach and includes extensive field work at Silwood Park and at a tropical field course. Students finish with a dedicated research project. This course is suitable for students who want to develop strong transferrable skills in the field of environmental and natural resource management.

Students on **MSc Taxonomy, Biodiversity and Evolution** will be trained in taxonomy, evolutionary biology, biodiversity, collection science, and palaeobiology. The programme will equip you with quantitative and analytical skills in computing, morphological and molecular techniques for systematics, taxonomy, evolutionary biology and biodiversity research. You will study primarily at the Natural History Museum (NHM) in South Kensington, but will also attend lectures and practicals at the Silwood Park campus during the Autumn term. Students finish with a dedicated research project. This course is suitable for students with an interest in evolution and diversity of life.

Learning Outcomes

Upon successful completion of this programme, you will be able to:

1. Implement data science techniques to better understand biodiversity, ecology, evolution and conservation, including: critically evaluate and apply appropriate data collection and analysis techniques; interpret, summarise and communicate complex environmental data and data analyses
2. Critique and apply research techniques, including information retrieval; computer-based data mining, laboratory and/or field methods to generate data; experimental design; statistical modelling; laboratory and field safety
3. Demonstrate advanced research skills including the ability to: analyse and solve research problems; integrate and summarise biological knowledge to raise novel questions; logical thinking and problem solving; formulate testable hypotheses and design appropriate observations or experiments to test them; plan and safely execute experiments; analyse experimental results to determine their strength and validity; plan, implement and complete a programme of original research; and critically evaluate research literature and your own findings
4. Apply project management skills to effectively plan and execute research projects including: problem definition; project design; decision making; project evaluation; risk management; teamwork and coordination; and time and resource management
5. Communicate effectively through oral presentation, written reports, and scientific publications

In addition, graduates will be able to:

MSc Living Planet with Computational Methods in Ecology and Evolution

- Identify analytical, statistical and modelling methods appropriate for specific lines of inquiry in ecology and evolution
- Understand the fundamental role of mathematical models in modern biology and what can and cannot be accomplished with modelling
- Critically evaluate the strengths and weaknesses of different modelling frameworks
- Implement and analyse mathematical models with computer simulations
- Use and/or develop computational tools and packages

MSc Living Planet with Ecological Applications

- Evaluate and appraise ecological and evolutionary concepts, models and theory as they relate to individuals, populations, communities, and ecosystem functioning
- Explain and apply principles of applied ecology on selected topics, which may include agro-ecosystems, biocontrol, invasive species, and/or other similar topics

MSc Living Planet with Ecology, Evolution and Conservation

- Interpret and evaluate evolutionary theory as it relates to the origins and dynamics of diversity
- Critique ecological and evolutionary models and their application to predict and guide population dynamics
- Apply and modify methods of evolutionary analysis, namely quantitative and molecular approaches for population studies and phylogenetics

MSc Living Planet with Research Methods in Ecology

- Critically evaluate the appropriate data collection and analysis techniques for addressing ecological questions and monitoring ecosystems
- Recommend and implement appropriate sensor technology for collecting ecological data
- Design sampling programmes and experiments to test ecological hypotheses and to monitor natural environments
- Demonstrate project planning, project management, and leadership skills

MSc Taxonomy, Biodiversity and Evolution

- Interpret and apply the practice of taxonomy and the basic principles of describing, delimiting and naming species and higher-level taxa
- Explain and synthesise the evolution of biodiversity, including species diversity and the diversity of forms
- Critique the conceptual basis of systematics, phylogenetics and evolutionary biology
- Explain the principles of phylogeny reconstruction, including cladistics and model-based approaches, and implement them with the use of recent software packages
- Apply modern techniques to the study of biodiversity, in particular genomics methods and digital tools for exploiting museum collections

Exit awards

Students who graduate with a **PG Certificate** will have accomplished learning outcomes 1-2 above, and also be able to:

- Select and apply appropriate statistical methods for analysing ecological, evolutionary and environmental data
- Apply computing research skills and methodology to problems in biodiversity, ecology, evolution and conservation

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial degree programme. The Graduate Attributes are available at: https://www.imperial.ac.uk/about/education/our-graduates/

Entry Requirements	
Academic Requirement	2:1 Bachelor's degree in a science-based subject
Non-academic Requirements	N/A
English Language Requirement	Higher requirement for all MSc Living Planet streams

	Standard requirement for MSc Taxonomy, Biodiversity and Evolution Please check for other Accepted English Qualifications
Admissions Test/Interview	N/A

The programme's competency standards documents can be found at: http://www.imperial.ac.uk/media/imperial-college/faculty-of-natural-sciences/department-of-life-sciences/public/postgraduate/masters/Life-Sciences-Competence-standards-PG.pdf

Learning & Teaching Approach

Learning and Teaching Delivery Methods

Scheduled
You will be taught primarily through lectures, seminars and practicals which will require a mix of individual and group work. Practicals will be supported by graduate teaching assistants and teaching staff. You will take part in scheduled lab meetings and we expect you to attend departmental seminars, which provide research level presentations across a wide range of topics within ecology and evolution.

Field trips and fieldwork
Students in options **MSc Taxonomy, Biodiversity and Evolution** will take part in at least one week of fieldwork held at the Natural History Museum in London. Students in **MSc Living Planet with Ecological Applications, MSc Living Planet with Ecology Evolution and Conservation** and **MSc Living Planet with Research Methods in Ecology** will have the choice to take part in at least one week of fieldwork in the temperate forest and grasslands at Imperial College London's Silwood Park Campus.
Options **MSc Living Planet with Ecology, Evolution and Conservation, MSc Living Planet with Ecological Applications** and **MSc Living Planet with Research Methods in Ecology** include additional fieldwork in other UK environments. **MSc Living Planet with Research Methods in Ecology** also involves an international field course, typically held in Malaysia.

E-learning and blended learning approaches
Many practicals in Term 1 will be computer-based and may include the use of web-based programming interfaces. Some teaching will be delivered using blended e-learning approaches, including the use of online lectures, recorded seminars and flipped teaching.

Independent learning
You will be expected to spend significant amounts of time working independently, outside of face-to-face contact time. This will typically include searching and reading the scientific literature, working on individual and group projects, and working on coursework assignments. We will sometimes use flipped teaching methods, meaning you will need to engage with online lecture materials, seminar recordings and readings in advance of attending timetabled sessions.

Research projects
You will spend 18 weeks of your programme working on an individual research project, during which you will be embedded in a research environment either within Imperial College London, the Natural History Museum (for **MSc Taxonomy, Biodiversity and Evolution** option) or with external research and academic organisations. This is an extended piece of independent research where you are expected to take the lead in developing the research question and driving the work forward. You will be supported by an academic supervisor, who will be responsible for the day-to-day guidance on your project.

Class sizes
Teaching in Term 1 is shared among all course options and class sizes are typically in the range of 110-130 students for lectures. Practicals are sometimes duplicated to reduce student numbers where that is needed for effective learning support. Class sizes are considerably lower in Term 2 when students are in their streamed course option and are typically in the range of 10-30 students.

Overall Workload
Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary, the following gives an indication of how much time you will need to allocate to different activities at

each level of the programme. At Imperial, each ECTS credit taken equates to an expected total study time of 25 hours. Therefore, the expected total study time is 2250 hours per year.

You will typically spend around 20% of your time in lectures and practicals and about 30% of your time in independent study during the taught part of the course. The remaining 50% of your time will be spent on independent study on your research project.

Assessment Strategy

Assessment Methods

Summative assessments are all designed to have a formative element, where feedback will help you prepare for future assessments.

You will have a typical assessment balance of coursework (25 %), practical (25 %) and written (50 %).

Coursework might involve assessments of reports, computer scripts and datasets, and may be assessed in the form of written reports or oral presentations. **Practicals** will typically be in the form of a mini-project, requiring you to analyse and present an analysis of data. **Written** work is in the form of a research project, which will typically be assessed through the written report itself and an oral presentation.

Academic Feedback Policy

Coursework will be check-marked and comments by the marker are annotated directly on the papers (typically, electronically). A summary of the feedback and an indicative mark will be given. The papers will be returned to the students as soon as possible and within two weeks of submission.

Research projects are marked by your supervisor and an independent assessor, based on the thesis itself and an oral presentation. Marks for the research project will only be released after final exam board approval. Electronic feedback of these assessments is returned automatically to students after the final examiners meeting.

Staff-student meetings are held termly to communicate general feedback between student representatives and the course directors.

Imperial's Policy on Academic Feedback and guidance on issuing provisional marks to students is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Re-sit Policy

Imperial's Policy on Re-sits is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

There are no written examinations in this course. Students will not be permitted to retake coursework and project assessments.

Mitigating Circumstances Policy

Imperial's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Additional Programme Costs

This section should outline any additional costs relevant to this programme which are not included in students' tuition fees.

Description	Mandatory/Optional	Approximate cost

Laptop computer capable of running a UNIX-based OS (**MSc Living Planet with Computational Methods in Ecology and Evolution)**	Mandatory	Will be loaned by Department if required
Laptop computer (all other courses)	Mandatory	£300

Important notice: The Programme Specifications are the result of a large curriculum and pedagogy reform implemented by the Department and supported by the Learning and Teaching Strategy of Imperial College London. The modules, structure and assessments presented in this Programme Specification are correct at time of publication but might change as a result of student and staff feedback and the introduction of new or innovative approaches to teaching and learning. You will be consulted and notified in a timely manner of any changes to this document.

Programme Structure[1]

MSc Living Planet with Computational Methods in Ecology and Evolution

FHEQ Level 7
You will study all compulsory modules.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
LIFE70068	Biological Computing Bootcamp	Compulsory	N/A	Autumn	7.5
LIFE70073	Statistics in R	Compulsory	N/A	Autumn	7.5
LIFE70072	Introduction to Ecological and Evolutionary Data Science	Compulsory	N/A	Autumn	7.5
LIFE70065	HPC for Biological Computing	Compulsory	N/A	Autumn	7.5
LIFE70064	Mathematical Modelling in Ecology and Evolution	Compulsory	N/A	Spring	7.5
LIFE70063	Advanced Data Science	Compulsory	N/A	Spring	7.5
LIFE70062	MSc Research Project	Core	N/A	Summer	45
				Credit Total	90

MSc Living Planet with Ecological Applications

FHEQ Level 7
You will study all compulsory modules. You will also choose one elective from group A.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
LIFE70066	Silwood Field Course and Basic Computing	Elective	A	Autumn - Spring	7.5
LIFE70068	Biological Computing Bootcamp	Elective	A	Autumn	7.5
LIFE70073	Statistics in R	Compulsory	N/A	Autumn	7.5
LIFE70072	Introduction to Ecological and Evolutionary Data Science	Compulsory	N/A	Autumn	7.5
LIFE70052	Conservation	Compulsory	N/A	Spring	7.5
LIFE70060	Agroecosystems	Compulsory	N/A	Spring	7.5
LIFE70053	Evolution	Compulsory	N/A	Spring	7.5
LIFE70062	MSc Research Project	Core	N/A	Summer	45

[1] **Core** modules are those which serve a fundamental role within the curriculum, and for which achievement of the credits for that module is essential for the achievement of the target award. Core modules must therefore be taken and passed in order to achieve that named award. **Compulsory** modules are those which are designated as necessary to be taken as part of the programme syllabus. Compulsory modules can be compensated. **Elective** modules are those which are in the same subject area as the field of study and are offered to students in order to offer an element of choice in the curriculum and from which students are able to select. Elective modules can be compensated.

				Credit Total	90

MSc Living Planet with Research Methods in Ecology

FHEQ Level 7
You will study all compulsory modules. You will also choose one elective from group A.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
LIFE70066	Silwood Field Course and Basic Computing	Elective	A	Autumn - Spring	7.5
LIFE70068	Biological Computing Bootcamp	Elective	A	Autumn	7.5
LIFE70073	Statistics in R	Compulsory	N/A	Autumn	7.5
LIFE70072	Introduction to Ecological and Evolutionary Data Science	Compulsory	N/A	Autumn	7.5
LIFE70058	Planning Environmental Data Collection	Compulsory	N/A	Spring	7.5
LIFE70057	Sensor Technology	Compulsory	N/A	Spring	7.5
LIFE70056	Research Management in Field Conditions	Compulsory	N/A	Spring	7.5
LIFE70062	MSc Research Project	Core	N/A	Summer	45
				Credit Total	90

MSc Living Planet with Ecology, Evolution and Conservation

FHEQ Level 7
You will study all compulsory modules. You will also choose one elective from group A.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
LIFE70066	Silwood Field Course and Basic Computing	Elective	A	Autumn - Spring	7.5
LIFE70068	Biological Computing Bootcamp	Elective	A	Autumn	7.5
LIFE70073	Statistics in R	Compulsory	N/A	Autumn	7.5
LIFE70072	Introduction to Ecological and Evolutionary Data Science	Compulsory	N/A	Autumn	7.5
LIFE70054	Ecology	Compulsory	N/A	Spring	7.5
LIFE70053	Evolution	Compulsory	N/A	Spring	7.5
LIFE70052	Conservation	Compulsory	N/A	Spring	7.5
LIFE70062	MSc Research Project	Core	N/A	Summer	45
				Credit Total	90

MSc Taxonomy, Biodiversity and Evolution

FHEQ Level 7 **You will study all compulsory modules.**					
Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
LIFE70074	NHM Field Course and Basic Computing	Compulsory	N/A	Autumn	7.5
LIFE70073	Statistics in R	Compulsory	N/A	Autumn	7.5
LIFE70072	Introduction to Ecological and Evolutionary Data Science	Compulsory	N/A	Autumn	7.5
LIFE70051	Natural History Collections and Principles of Taxonomy	Compulsory	N/A	Spring	7.5
LIFE70050	Phylogenetics and Molecular Systematics	Compulsory	N/A	Spring	7.5
LIFE70049	Palaeobiology and Speciation	Compulsory	N/A	Spring	7.5
LIFE70062	MSc Research Project	Core	N/A	Summer	45
				Credit Total	90

Progression and Classification

Award and Classification for Postgraduate Students

Award of a Postgraduate Certificate (PG Cert) [Exit Award]
To qualify for the award of a postgraduate certificate you must have a minimum of 30 credits at Level 7

Award of a Masters Degree
To qualify for the award of a postgraduate degree a student must have:

1. accumulated credit to the value of no fewer than 90 credits at level 7
2. and no more than 15 credits as a Compensated Pass;
3. met any specific requirements for an award as outlined in the approved programme specification for that award.

Classification of Postgraduate Taught Awards
The university sets the class of Degree that may be awarded as follows:

1. Distinction: 70.00% or above
2. Merit: 60.00% or above but less than 70.00%.
3. Pass: 50.00% or above but less than 60.00%.

For a Masters, your classification will be determined through the Programme Overall Weighted Average meeting the threshold for the relevant classification band.

Your degree algorithm provides an appropriate and reliable summary of your performance against the programme learning outcomes. It reflects the design, delivery, and structure of your programme without unduly over-emphasising particular aspects.

Programme Specific Regulations

N/A

Supporting Information
The Programme Handbook is available from the department.
The Module Handbook is available from the department.
Imperial's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/
Imperial's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance
Imperial's Academic and Examination Regulations can be found at: www.imperial.ac.uk/about/governance/academic-governance/regulations
Imperial College London is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of Imperial's Centenary, 8th July 2007, established Imperial as a University with the name and style of "The Imperial College of Science, Technology and Medicine". www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/
Imperial College London is regulated by the Office for Students (OfS) www.officeforstudents.org.uk/advice-and-guidance/the-register/
This document provides a definitive record of the main features of the programme and the learning outcomes that you may reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for prospective and current students, academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.