## Programme Information

| Programme Title | | Programme Code | HECoS Code |
|---|---|---|---|
| Taxonomy, Biodiversity and Evolution | | C1U8 | 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 |

## Ownership

| | | | |
|---|---|---|---|
| Awarding Institution | Imperial College London | Faculty | Faculty of Natural Sciences |
| Teaching Institution | Imperial College London | Department | Life Sciences |
| Associateship | Diploma of Imperial College (DIC) | Main Location(s) of Study | South Kensington Campus / Natural History Museum |

### External Reference

| Relevant QAA Benchmark Statement(s) and/or other external reference points | N/A |
|---|---|
| FHEQ 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 | Collaborative Degree Programme Agreement | Sept 2017 | 5 years |

### Specification Details

| Programme Lead | Professor Alfried Vogler |
|---|---|
| Student cohorts covered by specification | 2023-24 entry |
| Date of introduction of programme | October 96 |

| Date of programme specification/revision | August 23 |
|---|---|

## Programme Overview

The MSc Taxonomy Biodiversity and Evolution is taught jointly by researchers from Imperial College London and the Natural History Museum (NHM). At Imperial, lecturers come from the Ecology and Evolution section at Silwood Park. They mainly contribute to teaching of quantitative skills for ecology, biodiversity and genomics. At NHM, two large research departments in Life Sciences and Earth Sciences contribute to teaching in taxonomy, evolutionary biology, biodiversity, collection science, and palaeobiology.

You will study the taught course mainly at the Natural History Museum, where students attend lectures, together with computer and laboratory-based practicals. The Natural History Museum is in South Kensington, just a five-minute walk from Imperial's main campus. You will also attend lectures and practicals at the Silwood Park campus; for four weeks during the Autumn term and for two weeks in the Spring term.

The programme will equip you with quantitative and analytical skills in computing, morphological and molecular techniques for systematics, taxonomy, evolutionary biology and biodiversity research.

Students have the opportunity to specialise in their chosen subject during an independent four-month research project, based either at the Museum or the Silwood Park Campus.

Students may choose to undertake fieldwork carrying out biodiversity surveys, work in the molecular laboratories, or use the Natural History Museum's world-renowned collection of natural history specimens.

The unique location of this course enables students to attend regular seminars given by top researchers and to have important networking opportunities for future PhDs and careers.

## Learning Outcomes

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

**Knowledge and Understanding:**

a. Explain the practice of taxonomy and the basic principles of describing, delimiting and naming species and higher-level taxa;
b. Apply methods for measuring this diversity and monitoring changes due to both anthropogenic and natural factors;
c. Apply latest techniques to the study of biodiversity, in particular genomics methods and digital tools for exploiting museum collections;
d. Explain the conceptual basis of systematics, phylogenetics and evolutionary biology, and the power of 'tree thinking' for underpinning research in the life sciences;
e. Explain the principles of phylogeny reconstruction, including cladistics and model-based approaches, and implement them with the use of recent software packages;
f. Explain the evolution of biodiversity, including species diversity and the diversity of forms;
g. Explain the methodologies for studying fossil specimens and the power of the palaeontological record for understanding the evolution and ecology of extant biodiversity;
h. Explain how these concepts of taxonomy and biodiversity are useful in applied science, including policy making;
i. Apply research techniques, including information retrieval, experimental design and statistics, sampling, taxonomic keys, molecular systematics, laboratory and field safety;
j. Transferable skills, including problem definition, project design, decision processes, teamwork, written and oral reports, scientific publications

## 2. Skills and other Attributes

**Intellectual Skills:**

a. Critically evaluate current research through reading published papers in the primary literature;
b. Formulate hypotheses, and design experiments and protocols for data collection to test them;
c. Devise and use appropriate statistical methods to analyse biological data in phylogenetics, evolution and biodiversity;

d.   Demonstrate the ability of planning, undertaking and writing up an original and individual research project.

**Practical Skills:**

a.   Select appropriate laboratory and field-based for the study of given problems and carry them out in a technically valid manner;
b.   Analyse experimental results and determine their strength and validity;
c.   Apply a suite of statistical tools and computational packages relevant to analyse data, including morphological and molecular character data;
d.   Write technical and other reports effectively and concisely for scientific and lay audiences
e.   Prepare research proposals;
f.   Give presentations to scientific and lay audiences;
g.   Use the scientific literature effectively.

**Transferable Skills:**

a.   Communicate effectively through oral presentation, written reports, and scientific publications;
b.   Apply statistical and modelling skills;
c.   Management skills: decision making, problem definition, project design and evaluation, risk management, teamwork and coordination;
d.   Integrate and evaluate information from a variety of sources;
e.   Transfer techniques and solutions from one discipline to another;
f.   Use information and communications Technology;
g.   Manage resources and time;
h.   Learn independently with open-mindedness and critical enquiry;
i.   Learn effectively for the purpose of continuing professional development.

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: www.imperial.ac.uk/students/academic-support/graduate-attributes

## Entry Requirements

| | |
|---|---|
| Academic Requirement | Normally a 2:1 UK Bachelor's Degree with Honours in any area of Biology or related science-based subject (e.g. Palaeontology, Geology, Marine Biology, Anthropology, Environmental Sciences) (or a comparable qualification recognised by the College). For further information on entry requirements, please go to www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/accepted-qualifications/ |
| Non-academic Requirements | None |
| English Language Requirement | Standard requirement (PG) Please check for other Accepted English Qualifications |
| Admissions Test/Interview | Based on CV / personal statement or interview in specific cases |

The programme's competency standards document can be found at: 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**
- Lectures;
- Practicals;
- Workshops.
- Project work

See individual module specifications for details.

**Overall Workload**

Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the optional modules you choose to study, 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 for this 90 ECTS MSc programme is 2250 hours per year, subject to reasonable adjustments.

In the first two terms you will spend about 25% of your time in lectures, 25% in practicals, and the rest in independent learning. In the third term you will be working on the project.

## Assessment Strategy

### Assessment Methods

- Individual Research Project Report;
- Oral Presentation;
- Reports;
- Written Examinations
See individual module specifications for details.

### Academic Feedback Policy

Feedback for the written report, the oral presentation and the viva is recorded by the two examiners after the examination. This is available to students via the course director.

Staff-student meetings are held termly to communicate general feedback between student representatives and the course directors. Additional meetings are held to provide general feedback and guidance e.g. on project selection.

We aim to return all feedback within two weeks in accordance with Imperial policy.

The College'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

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

### Mitigating Circumstances Policy

The College'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 | Mandatory | £500 if purchased new |

**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] | | | | | |
|---|---|---|---|---|---|
| **Year 1 – FHEQ Level 7**<br>**You will study all core modules.** | | | | | |
| Code | Module Title | Core/<br>Compulsory | Group | Term | Credits |
| LIFE70041 | Origin and Evolution of Diversity | Compulsory | | Spring | 15 |
| LIFE70042 | Theory and Practice of Taxonomy and Phylogenetics | Compulsory | | Autumn | 15 |
| LIFE70009 | Biological Computing | Compulsory | | Autumn-Spring | 10 |
| LIFE70047 | Data Science | Compulsory | | Spring | 5 |
| LIFE70043 | Research Project in Taxonomy, Biodiversity and Evolution | Core | | Summer | 45 |
| | | | | Credit Total | 90 |

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[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.

| Progression and Classification |
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**Award of a Masters Degree (including MRes)**
To qualify for the award of a postgraduate degree you must have:
1. accumulated credit to the value of no fewer than 90 credits at level 7 or above of which no more than 15 credits may be from credit level 6;
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 College 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%.

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 |
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N/A

| Supporting Information |
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| The Programme Handbook is available at: www.imperial.ac.uk/life-sciences/postgraduate/masters-courses/msc-in-taxonomy--biodiversity/ |
| The Module Handbook is available at: www.imperial.ac.uk/life-sciences/postgraduate/masters-courses/msc-in-taxonomy--biodiversity/ |
| The College's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/pg/apply/requirements |
| The College's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance |
| The College's Academic and Examination Regulations can be found at: www.imperial.ac.uk/about/governance/academic-governance/regulations |
| Imperial College 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 the College's Centenary, 8th July 2007, established the College 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. |