MRes Biosystematics

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is intended as a reference point for prospective students, current students, external examiners and academic and support staff involved in delivering the programme and enabling student development and achievement.

Programme Information

Programme Title	Biosystematics
Award(s)	MRes
Programme Code	C1Y8
Awarding Institution	Imperial College London
Teaching Institution	Imperial College London
Faculty	Faculty of Natural Sciences
Department	Department of Life Sciences
Main Location of Study	South Kensington Campus
Mode and Period of Study	1 academic year, full-time
Cohort Entry Points	Annually in October
Relevant QAA Benchmark Statement(s) and/or other external reference points	Master's Degree Characteristics

Total Credits	ECTS:	90	CATS:	180

FHEQ Level	Level 7
EHEA Level	2nd cycle
External Accreditor(s)	None

Specification Details

Student cohorts covered by specification	2017-18 entry
Person responsible for the specification	Ms Jennifer Bennett, Postgraduate Administrator
Date of introduction of programme	
Date of programme specification/revision	March 2018

Programme Overview

This is a one-year research-based postgraduate course, run jointly by Imperial College London and the Natural History Museum in South Kensington, a leading institute in systematics research, where the students will be based for much of their time. The course provides students with a broad perspective of taxonomy and systematics, together with relevant practical experience. The course is aimed at students who wish to broaden their knowledge in this area before undertaking a PhD or embarking on a career in systematics research. The course runs alongside the MSc in Taxonomy and Biodiversity and students will attend key lectures of that course. Students are fully integrated in research groups and attend lab meetings and research seminars.

The MRes Biosystematics is unique in that it comprises three consecutive 14-week research projects, which gives students the opportunity for 'rotation' through multiple research labs and types of projects. While studies of the subject area are by hands-on research, wide coverage of the field is achieved by selection of one project each from three main areas, including: (a) specimen-based phylogenetics, (b) molecular systematics and genomics, and (c) 'big-data' bioinformatics and biodiversity informatics. The projects are selected from a list of eligible topics or are developed with the student's input. The very wide range of research interests of potential supervisors at Imperial and NHM ensures a broad choice of topics.

One of the projects will be based at Silwood Park.

Learning Outcomes

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

Knowledge and Understanding of:

1. Principles of phylogeny reconstruction;
2. Taxonomic practice in collection-based research;
3. Measuring and interpreting variation in specimen-based taxonomy;
4. Interpretation of palaeontological data;
5. Detailed knowledge and understanding of species concepts and their consequences;
6. Principles and practice of molecular systematics;
7. Recent advances in DNA taxonomy/ DNA barcoding;
8. Bioinformatics for DNA sequence analysis;
9. Research techniques, including information retrieval, experimental design and statistics, sampling, taxonomic keys, molecular systematics, laboratory and field safety;
10. Management and communication skills, including problem definition, project design, decision processes, teamwork, written and oral reports, scientific publications.

Intellectual Skills – able to:

1. Understand and evaluate current research through reading published papers in recommended journals;
2. Plan a course of training to enable learning of appropriate skills;
3. Decide appropriate scientific methods and techniques for analysing raw data and solving phylogenetic problems;
4. Plan, undertake and write up three original and individual research projects.

Practical Skills – able to:

1. Use laboratory and collection-based methods to generate data;
2. Analyse experimental results and determine their strength and validity;
3. Analyse morphological and molecular character data;
4. Prepare technical reports;
5. Prepare reports for an intelligent lay audience;
6. Give technical presentations;
7. Use the scientific literature effectively;
8. Use computational tools and packages.

Transferable Skills – able to:

1. Communicate effectively through oral presentations, written reports and scientific publications;
2. Apply statistical and systematic skills; 3 management skills: problem definition, project design and evaluation, risk management, teamwork and coordination;
3. Integrate and evaluate information from a variety of sources;
4. Transfer techniques and solutions from one discipline to another;
5. Use Information and Communications Technology;
6. Manage resources and time;
7. Learn independently with open-mindedness and critical enquiry;
8. Learn effectively for the purpose of continuing professional development.

Entry Requirements

Academic Requirement	Normally a 2.1 UK Bachelor's Degree with Honours in a Biological or Environmental subject (or a comparable qualification recognised by the College).
English Language Requirement	Standard requirement IELTS score of 6.5 overall (minimum 6.0 in all elements)

Learning & Teaching Strategy

Scheduled Learning & Teaching Methods	- Lectures - Tutorials - Seminars - Lab Meetings - Journal Clubs
Project and Placement Learning Methods	• Independent Research Project

Assessment Strategy

Assessment Methods	- Presentations - Research Projects
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 tutorials and meetings are held to provide general feedback and guidance e.g. on project selection.

Re-sit Policy

In line with College policy, students who are unsuccessful in any of their examinations may usually be allowed an opportunity to re-sit at the discretion of the Board of Examiners.

Specific information regarding re-sits for Taught Master's degrees can be found in the relevant Academic Regulations available at: https://www.imperial.ac.uk/about/governance/academic-governance/regulations/

Mitigating Circumstances Policy

Students may be eligible to apply for mitigation if they have suffered from serious and unforeseen circumstances during the course of their studies that have adversely affected their ability to complete an assessment task and/or their performance in a piece of assessment.

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

Assessment Dates & Deadlines	
Written Examinations	N/A
Coursework Assessments	Continuous
Project Deadlines	February, June and September
Practical Assessments	Continuous

Assessment Structure

Marking Scheme

Pass:
- 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 tutorials and meetings are held to provide general feedback and guidance e.g. on project selection.

Merit:
- In line with College policy, students who are unsuccessful in any of their examinations may usually be allowed an opportunity to re-sit at the discretion of the Board of Examiners.
- Specific information regarding re-sits for Taught Master's degrees can be found in the relevant Academic Regulations available at:

https://www.imperial.ac.uk/about/governance/academic-governance/regulations/

Distinction:
- Students may be eligible to apply for mitigation if they have suffered from serious and unforeseen circumstances during the course of their studies that have adversely affected their ability to complete an assessment task and/or their performance in a piece of assessment.
- The College's Policy on Mitigating Circumstances is available at: https://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Module Weightings	
Module	% Module Weighting
Morphological Phylogenetics and Morphometrics Research Project	33.3%
Molecular Systematics and Genomics Research Project	33.3%
Bioinformatics and Biodiversity Research Project	33.3%
Taxonomy and Phylogenetics: Methods and Theory	0%

		Indicative Module List										
Code	Title	Core/ Elective	L&T Hours	Ind. Study Hours	Place-ment Hours	Total Hours	% Written Exam	% Course-work	% Practical	FHEQ Level	ECTS
	Morphological Phylogenetics and Morphometrics Research Project	CORE	0	750	0	750	0%	100%	0%	7	30
	Molecular Systematics and Genomics Research Project	CORE	0	750	0	750	0%	100%	0%	7	30
	Bioinformatics and Biodiversity Research Project	CORE	0	750	0	750	0%	100%	0%	7	30
	Taxonomy and Phylogenetics: Methods and Theory	CORE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7	0

Supporting Information
The Programme Handbook is available at: http://www.imperial.ac.uk/life-sciences/postgraduate/masters-courses/mres-in-biosystematics/
The Module Handbook is available at: http://www.imperial.ac.uk/life-sciences/postgraduate/masters-courses/mres-in-biosystematics/
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: https://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". http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/charter-and-statutes/
Imperial College London is regulated by the Higher Education Funding Council for England (HEFCE) http://www.hefce.ac.uk/reg/register/