Imperial College London

Programme Information

Programme Title		Programme Code	HECoS Code
Bioinformatics and Theoretical Systems Biology		C4U7	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MRes	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

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
N/A	N/A	N/A	N/A

Specification Details

Programme Lead	Professor Michael Sternberg
Student cohorts covered by specification	2023-24 entry
Date of introduction of programme	2010
Date of programme specification/revision	August 23

Programme Overview

This is a multidisciplinary research-based MRes course, designed for applicants with a biological, medical, physical, engineering, computational or mathematical background. It will equip you with the necessary skills to produce effective research in bioinformatics and theoretical systems biology, and begin to develop a career in these areas.

The programme is taught by experts in relevant fields within the College

Learning Outcomes

Upon successful completion of this program you will be able to:

1. Evaluate and justify appropriate methods for data analysis relating to biological, biochemical or medical situations.
2. Analyse genomic, protein and molecular interaction data using advanced techniques.
3. Decide on appropriate mathematical and statistical techniques and correctly apply these to bioinformatics and theoretical systems biology.
4. Develop own code and apply this to individual life sciences or medical research as relevant to current departmental research.
5. Collaborate effectively in diverse teams to address bioinformatic problems.
6. Evaluate current research through critiquing current relevant published papers.
7. Develop and implement strategies for research in bioinformatics and/or theoretical systems biology.
8. Produce advanced technical research report based on original research project.
9. Communicate research level bioinformatics and/or theoretical systems biology effectively through oral presentations.
10. Plan and execute an individual research project in bioinformatics or theoretical systems biology.
11. Integrate and evaluate information from a variety of sources and disciplines.
12. Develop research and/or management skills such as: problem definition, project design and evaluation, risk management, teamwork and critical enquiry.

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 at least a 2.1 UK Bachelor's Degree with Honours (or equivalent) in a biological, medical, physical, engineering, computational or mathematical subject.
Non-academic Requirements	None
English Language Requirement	Standard requirement (PG) Please check for other Accepted English Qualifications
Admissions Test/Interview	All shortlisted applicants will be interviewed either in person or online.

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

- Lectures backed up by external reading. Q&A feedback sessions to address any questions students have regarding the taught content
- Problems classes to enable students to practice and consolidate taught material
- Formal presentations to enable students to practice presenting research data and also to assess understanding
- Practical classes to gain practical experience using bioinformatics tools
- Assignments to assess understanding
- Computer assignments to assess ability to write computer programs
- Computer-based work to practice and develop computational skills
- Software development project to enable students to implement and develop computational skills
- Programming lectures with practical worked examples
- Programming practicals to consolidate and practice taught material
- Online lecture materials to enable students to review taught material
- Group project; software development (11 weeks) Enabling students to develop management and communication skills, including problem definition, project design, decision processes, teamwork, written and oral reports
- Individual research project & dissertation (22 weeks) Enabling students to apply research techniques, including information and data retrieval, study design, program development and implementation and data analysis

Overall Workload

Your overall workload consists of face-to-face sessions and independent learning. 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 MRes programme is 2250 hours per year, subject to reasonable adjustments.

In the first term you will spend about 10% of your time in lectures and the rest in practicals, group teaching and independent study. The final two terms will be project work.

Assessment Strategy

Assessment Methods

Details are in individual module specifications, but will include:
- Coursework
- Exams
- Computer Assignments
- Computer Exam (open book)
- Mathematics Assignment
- Reports
- Presentations
- Oral Exam

Academic Feedback Policy

Coursework is marked and comments by the marker will be annotated on the original (electronically for submissions on blackboard). A summary of the feedback will be completed, and provisional grades will be given (actual marks will be ratified by the board of examiners). These papers will then be returned to the students as soon as possible and within the later of 20 working days of submission or any subsequent oral presentation by the student.

A provisional indication of a student's exam result will be given no later than 2 months after the exam (actual marks will be ratified by the board of examiners).

Staff-student meetings are held at least termly to communicate general feedback between student representatives and the course directors, to discuss exam formats and project report formats, to aid in the preparation of project write-ups, and to provide guidance on project selection.

The research project performance and any project report is marked by the supervisor. In addition, two

independent assessors grade the report and oral presentations including response to questions. Assessment uses bespoke pro forma.

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
N/A	N/A	N/A

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
You will study all core and compulsory modules.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
LIFE70004	Bioinformatics and Theoretical Systems Biology	Compulsory		Autumn	15
LIFE70005	Mathematics and Computing	Compulsory		Autumn	10
LIFE70006	Computing Project (Project 1)	Core		Spring	25
LIFE70008	Bioinformatics and Theoretical Systems Biology Project (Project 2)	Core		Spring-Summer	40
				Credit Total	90

---

[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

Award of a Masters Degree (MRes)
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 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%.
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

N/A

Supporting Information
The Programme Handbook is available from the department.
The Module Handbook is available from the department.
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.