Imperial College London

Programme Specification (Master's Level)

MSc Applied Biosciences and Biotechnology

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	Applied Biosciences and Biotechnology			
Award(s)	MSc			
Programme Code	C9ABT			
Associateship	None			
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	2019-20 entry			
Person responsible for the specification	Dr. Giorgio Gilestro			
Date of introduction of programme	October 2013			

Date of programme specification/revision	November 2019

Programme Overview

This course provides an in-depth understanding of the core principles and methodologies underlying modern bioscience research and its exploitation.

It aims to equip graduates with the relevant skills to pursue careers in applied biosciences and biotechnology in the industrial and public sectors in the UK and overseas.

It includes both taught and research-based elements encompassing biochemistry, molecular cell biology, systems and synthetic biology, bioinformatics, and entrepreneurship.

After completion of compulsory taught modules, the students will focus on a specialised dissertation and research projects that are consistent with their interests and career aspirations.

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. Fundamental principles of molecular biology, molecular cell biology and bioinformatics;
2. Modern approaches in biotechnology: the *'omics technologies*;
3. Research techniques, including essential molecular biology methodologies; protein chemistry, proteomics, glycomics, metabolomics and bioprocessing;
4. Principles of translation of research; innovation and entrepreneurship;
5. Detailed knowledge and understanding of the essential facts, concepts, principles, techniques and theories relevant to the student's chosen research project;
6. 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 in applied bioscience and biotechnology through reading published papers;
2. Integrate and evaluate information from a variety of sources;
3. Formulate and test hypotheses;
4. Be creative in the solution of problems and in the development of hypotheses;
5. Plan, conduct and write-up a programme of original research.

Practical Skills - able to:

1. Plan and execute safely an individual research project in the biosciences;
2. Use laboratory equipment to generate data;
3. Analyse experimental results and determine their strength and validity;
4. Prepare technical reports;
5. Give technical presentations;
6. Use the scientific literature effectively;
7. Use computational tools and packages

Transferable Skills - able to:

1. Communicate effectively through oral presentations, computer processing and presentations, written reports and scientific publications;
2. Management skills: decision processes, objective criteria, problem definition, project design and evaluation, risk management, teamwork and coordination, extension needs;
3. Integrate and evaluate information from a variety of sources;
4. Use Information and Communications Technology;
5. Transfer techniques and solutions from one discipline to another;
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 Biochemistry, Biology or a related subject (or a comparable qualification recognised by the College).
Non-academic Requirements	None
English Language Requirement	Standard requirement IELTS score of 6.5 overall (minimum 6.0 in all elements)
The programme's competency standards document 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 Strategy	
Scheduled Learning & Teaching Methods	• Laboratory • Lectures • Tutorials • Seminars • Practical laboratory and computer classes • Workshops • Case studies

	• Group work exercises • Formal presentations
E-learning & Blended Learning Methods	• Online lecture material • Computer-based classes
Project and Placement Learning Methods	• Individual dissertation exercise • Individual research project
Assessment Strategy	
Assessment Methods	• Written examinations • Essay • Dissertation • Coursework exercises • Poster presentations • Oral Presentations • Individual research project report • Viva

Academic Feedback Policy

Coursework is marked by academic staff and constructive comments by the markers annotated either directly on the papers or in comments boxes on Blackboard (electronically for submissions on blackboard). An indicative grade is given to the students, but actual marks will not be communicated to the students. These papers will then be returned to the students as soon as possible and within two weeks of submission. Marking is overseen by the course director who ensures consistency and adherence to the marking criteria.

Students meet regularly with their assigned course tutor, either as a group or on a one-to-one basis, where discussions on students' progress take place. Progress and indicative grades are discussed, including how recent pieces of coursework were answered including what contributed to good answers and typical features leading to lower marks.

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 exam performance and project selection.

Dissertations and research projects are marked by the supervisor and by two independent assessors who provide written feedback on the work. In both cases, the independent assessors also viva the student, giving the student feedback on how the project was presented and how improvements can be made.

Re-sit Policy

The College's Policy on Re-sits is available at: http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/

Mitigating Circumstances Policy
The College's Policy on Mitigating Circumstances is available at: http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/

Programme Structure

Full-time	Pre-session	Autumn Term	Spring Term	Summer Term	Summer Vacation
Core Modules	0	1	1	0	0
Elective Modules	0	0	0	0	0
Projects	0	0	1	1	0

Assessment Dates & Deadlines

Written Examinations	3 examinations; one early Spring, two late Spring
Coursework Assessments	Autumn and Spring
Project Deadlines	Spring (Dissertation) Summer (Research project)
Practical Assessments	Spring

Assessment Structure

Marking Scheme

Pass:

- The Pass Mark is 50%. Students must pass all elements in order to be awarded a degree.

Merit:

- In order to be awarded a result of merit, a candidate must obtain a mark of 60% or greater in each element.
- Where appropriate, a Board of Examiners may award a result of merit where a candidate has achieved an aggregate mark of 60% or greater across the programme as a whole AND has obtained a mark of 60% or greater in each element with the exception of one element AND has obtained a mark of 55% or greater in this latter element.

Distinction:

- In order to be awarded a result of distinction, a candidate must obtain a mark of 70% or greater in each element;

- Where appropriate, a Board of Examiners may award a result of distinction where a candidate has achieved an aggregate mark of 70% or greater across the programme as a whole AND has obtained a mark of 70% or greater in each element with the exception of one element AND has obtained a mark of 65% or greater in this latter element.

Module Weightings		
Element (% weighting)	Module	% Module Weighting
Taught (40%)	Applied Biosciences I	25%
	Applied Biosciences II	37.5%
	Biotechnology	37.5%
Research (60%)	Dissertation	33.3%
	Research Project	66.6%

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
	Applied Biosciences I	CORE	45	180	0	225	75%	25%	0%	7	9
	Applied Biosciences II	CORE	48	292	0	340	75%	12.5%	12.5%	7	13
	Biotechnology	CORE	48	292	0	340	75%	12.5%	12.5%	7	13
	Dissertation	CORE	0	500	0	500	0%	100%	0%	7	20
	Research Project	CORE	0	875	0	875	0%	100%	0%	7	35

Supporting Information
The Programme Handbook is available at: http://www.imperial.ac.uk/life-sciences/postgraduate/masters-courses/msc-in-applied-biosciences-and-biotechnology/
The Module Handbook is available at: http://www.imperial.ac.uk/life-sciences/postgraduate/masters-courses/msc-in-applied-biosciences-and-biotechnology/
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 Office for Students (OfS) https://www.officeforstudents.org.uk/