

Programme Information		
Programme Title	Programme Code	HECoS Code
Alternative Protein	For Registry Use Only	101243

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MRes – H6AP1	1 Calendar year (12 months)	Full-time	Annually in October	90	180
MRes – H6AP2	2 Calendar Years (24 months)	Part-time	Annually in October	90	180
PG Certificate – H6AP1C	N/A	N/A	N/A	30	60
PG Diploma = H6AP2D	N/A	N/A	N/A	60	120

The PG Certificate/PG Diploma are exit awards and are not available for entry. You must apply to and join the **MRes**

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Engineering
Teaching Institution	Imperial College London	Department	Bioengineering
Associateship	Diploma of Imperial College (DIC)	Main Location(s) of Study	South Kensington Campus and White City Campus

External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points		Master’s award in Engineering	
FHEQ Level		Level 7	
EHEA Level		2nd Cycle	
External Accreditor(s) (if applicable)			
External Accreditor 1:	UK Engineering Council		
Accreditation received:	TBC	Accreditation renewal:	TBC
Collaborative Provision			

Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
N/A	N/A	N/A	N/A
Specification Details			
Programme Lead		Sonja Billerbeck	
Student cohorts covered by specification		2026-27 entry	
Date of introduction of programme		October 26	
Date of programme specification/revision		May 25	

Programme Overview

As the global population continues to grow, so does the demand for sustainable, nutritious and healthy food sources. The traditional reliance on animal- and agriculture-based food is becoming increasingly unsustainable, both environmentally and economically, necessitating innovative approaches to meet future needs. This **MRes in Alternative Protein** trains you at the intersection of **biotechnology, food science, bioprocess engineering, engineering biology, entrepreneurship and sustainable systems thinking** and equips you with the technical skills and interdisciplinary knowledge required to design, develop, and scale new solutions for alternative protein production and assess their market and sustainability potential. The MRes is associated within the **Bezos Centre for Sustainable Protein**.

The MRes in Alternative Protein is a one-year full-time programme. As a student on this programme, you will benefit from **interaction with** students on **other programmes in the Bioengineering Department and across the College (e.g. the Business School, and the Centre for Environmental Policy)** to help develop your interdisciplinary knowledge. You will gain useful skills in technology, research, entrepreneurship and sustainability systems thinking before embarking on a comprehensive, 9-month research project. Both the taught and research elements of this degree are multi-disciplinary drawing on expertise in biological engineering/technology, biology/nutrition/food and entrepreneurship/society/regulation and sustainability.

The programme involves lectures, group work and a team-based pitch-workshop in the first term, followed by full-time work on a research project, embedded within the **Bezos Centre for Sustainable Protein**. A variety of seminars and workshops throughout the year are provided to deepen and broaden your research skill-base. You will also have the opportunity to participate in mini-symposia showcasing food-, health, and sustainability related bioengineering research from Imperial and beyond. These events typically held on campus at both our South Kensington and White City locations, include talks from academia and industry alongside MRes student presentations. The programme will prepare you to analyse and solve problems towards developing viable alternatives to conventional food sources, focused on fermentation, cultivated meat and plant-based food.

Your MRes research project will be supervised by an academic at Imperial with relevant expertise that is of interest to you. Academics will post relevant projects on a dedicated department website. Before applying to this programme, you should identify a potential project and supervisor from this list available and include this choice as part of your personal statement when you apply. You will also need to choose a second-choice project, in case too many students apply for your project of choice.

Additionally, you may have a second supervisor with a complementary background, from a different department across the University or a co-supervisor from industry. This co-supervisor will usually be identified together with your primary supervisor. Your research project can also be conducted at a company upon department approval.

This programme may also be studied part-time. In this case you will typically complete the taught modules, and the module 'Planning of Alternative Protein Research' in the first year. The remainder of the project work will be completed in the second year. This option is particularly suitable for students who may be employed in industry and their project work may be conducted with an industrial partner.

This programme equips you for on-demand research careers in academia and industry within the field of biotechnology, engineering biology, food science, alternative protein and entrepreneurship. You will be particularly well equipped for several life science and engineering PhD programmes run within Imperial College and for opportunities within the food-based bioeconomy, including the vibrant start-up sector and more established companies, such as Imperial strategic partners Pepsi-Co, BASF, and Effem (Mars) amongst others.

Learning Outcomes

The following Learning Outcomes are in line with FHEQ level 7 and the UK-SPEC outcomes required for accreditation by professional engineering bodies.

Upon successful completion of the MRes Alternative Protein programme you will be able to:

1. Critically select and apply biological engineering and sustainability principles and tools for the analysis and solution of familiar and unfamiliar problems at the intersection of biotechnology, engineering biology, food science, and bioprocess engineering research.
2. Evaluate a wide range of scientific studies at the intersection of the above fields and critically discuss these examples in terms of their commercial, economic, social and sustainability implications, including investigation of new and emerging technologies.
3. Interpret state-of-the-art technical and scientific publications related to the research topic and establish a critical attitude towards the results of others as well as your own.
4. Work with information that may be incomplete or uncertain, quantify the effect of this on the design or development of an engineering solution and, where appropriate, use theory or experimental research to mitigate deficiencies through the generation of new data.
5. Work effectively with all members of a research team including students and academics, demonstrating good interpersonal and communication skills that show an appreciation for the different roles within a team.
6. Exercise initiative and judgement in a range of situations, identifying areas for self-learning and development, and accepting accountability for decisions made and the quality of outcomes produced.
7. Extract, analyse and critically evaluate information and data, gathered from experimentation, or academic and technical resources to determine their strength and validity, interpret conclusions and make recommendations for future experimental studies.
8. Conduct a piece of independent research at the intersection of engineering biology, food science, and bioprocess engineering research, set out in a research brief, within a defined timeframe and within available resources.
9. Conduct research and data management in a safe and ethical manner, critically assessing and implementing concepts of responsible innovation.
10. Professionally communicate the results of a programme of original research through a variety of means including the preparation and/or delivery of a presentation, a written report or a scientific paper.

Exit awards:

For completion of the **PG Certificate** you will normally have met ILO 1, 2, 3, 4, 6, 7 and 10. For example, you have successfully completed all taught modules and the research planning but not completed the research project.

For completion of the **PG Diploma** you will normally have met ILOs 1 and ILOs 4-10. For example, you may have successfully completed the planning and research and failed/not completed some taught modules. Which learning goal is not met will then depend on the module that was not completed.

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	Our minimum requirement is at least a 2.1 UK Honour's degree in life science, engineering, physical science or mathematical subject.
Non-academic Requirements	N/A
English Language Requirement	Higher requirement Please check for other Accepted English Qualifications
Admissions Test/Interview	By working with the Department of Bioengineering admissions team, a review of each student's prior academic performance and alignment with programme objectives will be conducted. Online/hybrid – or in person for local students – Interviews are a requirement for admission and will be conducted by Department staff members, normally including those academics that offer projects and who were identified by a student as potential supervisors. Interviewers will then recommend suitable candidates for the programme management to review and make final offers.

The programme's competency standards documents are available from the department.

Learning and Teaching Approach

Learning and Teaching Delivery Methods

You will be taught through a combination of lectures, study groups and tutorials, team-based case studies, guest lectures and presentations. Study groups and tutorials will enable you to discuss and develop your understanding of topics covered in lectures whilst in smaller groups. These are usually based around problem sheets, questions and tasks set by the module lecturers. You will be expected to solve these either individually or as part of a small group. Study groups and tutorials are supported by graduate teaching assistants. Timetabled sessions may be delivered online or in person, or in a hybrid format.

The Virtual learning environment will be used as a repository for teaching materials including recordings of all lectures, lecture notes and problem sheets. Learning technologies will be used to support teaching activities including in-class polling with Mentimeter, online self-diagnostic quizzes and online class forums.

Independent Learning

You are expected to spend significant time on independent study outside of timetabled learning and teaching sessions. From our experience students that undertake independent learning have improved academic performance, increased motivation and confidence in themselves and their abilities. By undertaking independent learning, you are also preparing yourself for professional practice where it is expected that you will manage your own continued professional development. Independent learning activities that you will be expected to undertake will typically include accessing online resources, completing problem sheets, reading journal articles and books,

undertaking research in the library, reviewing lecture notes and watching lecture recordings, working on individual and group projects, working on coursework assignments and revising for exams.

Lecturers use flipped teaching for some modules, meaning that you need to actively engage with on-line resources ahead of attending timetabled sessions. This independent learning is followed by sessions led by the teacher where all students work in small groups to apply that knowledge to more practical examples. This helps you to further consolidate and enhance your understanding of the topics you study and allows us the time to focus on more challenging concepts in the taught sessions. These taught sessions are normally in the place of study groups for a flipped module.

Research Project

A key part of our MRes programme is the Research Project. Mastery of engineering biology and alternative protein research is a complex and specialised field. Your Research Project is an opportunity for you to develop cutting edge research capabilities under the close supervision of academics and their research teams. This may include lecturers and clinicians from across Imperial.

You will be expected to engage with your project supervisor during your first week of term and begin the background research and planning for your project. On the standard MRes programme you would then begin full-time project work in the spring term, working on the project for 9 months.

For students that choose to study the degree part time, project work will begin in first year and extend into year 2.

Overall Workload

Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the topic module you choose to study, and the interaction with your supervisor during the research project, 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 2,250 hours per year. Part-time students will normally study the compulsory modules and the core module on research planning during the first year (30 ECTS, 750 hours) and perform their research project in Year 2 (60 ECTS, 1,500 hours). For the full-time MRes programme taught modules will be held mainly during the Autumn term. Part-time students: The compulsory taught modules are offered once per year, and part-time students typically take all compulsory taught modules during the Autumn term to benefit from cohort-wide activities and networking opportunities. This approach involves part-time students taking a block of time away from employment during the Autumn term of Year 1 while completing Modules 1 to 3. Module 4 and the two core modules can then be taken part-time across Years 1 and 2. If taking a block of time away from employment is not possible, an alternative scenario would be for a student to reduce their study load in the Autumn term of Year 1 by taking only Modules 1 and 2, and completing Module 3 in Year 2. Other flexible arrangements could also be considered.

You will typically spend 60 hours in lectures and tutorials, with around 315 hours of individual study. Your research project accounts for 1875 hours of additional individual study.

Assessment Strategy

Assessment Methods

A variety of assessment methods will be used to test your understanding. Assessments are grouped as formative and summative.

Formative assessments do not contribute to the module mark but provide information on your progress as an individual and in the context of the class. This allows you to learn by using your new skills to solve problems and receive feedback on your performance to guide your future learning. This supports you to achieve a better performance in the summative assessments which do count towards your module marks. Formative assessments also provide feedback to the teaching staff which allow us to adapt our teaching.

Summative assessments are used to assess your learning against the intended module learning outcomes and contribute towards your achievement of the programme learning outcomes, detailed above. There is summative assessment during and/or at the end of each module and these assessments will contribute towards your mark for the year.

The taught modules will be assessed using a combination of:

- _Oral presentations
- _Written reports, including a dissertation
- _Coursework
- _Practical training elements

The research modules will be assessed at regular intervals throughout the degree using a combination of:

- _Written Reports and Final Thesis
- _Oral presentations
- _Poster Presentations

The typical breakdown of assessments for this programme is:

	Year 1
Coursework	40 %
Practical	50 %
Written	10 %

Academic Feedback Policy

Feedback may be provided in one of a number of formats, including (but not limited to):

- _Oral (during or after lectures, personally or as a group feedback session)
- _Personal (discussion with academics during office hours, meetings with cohort and academic tutors)
- _Interactive (problem solving tutorials with GTAs and study groups, peer feedback)
- _Written (solutions/model answers to coursework, electronic feedback online)

Deadlines for submission of assessments and to receive feedback are indicated in the coursework calendars normally provided at the start of the teaching year. You will usually be provided with feedback within 10 working days although on occasions they may be informed of a different time scale (e.g. if the submitted work is particularly complex and will take a long time to mark).

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/
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
Course materials and books	Optional	
Personal Protective Equipment	Mandatory	Provided
Laptop	Mandatory	£400

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. *This module is considered as pass/fail and will not contribute to the overall weighted average used for classification of the programme					
Code	Module Title	Core/ Compulsory Elective	Group	Term	Credits
BIOE70037	Data Analysis for Research	Compulsory	N/A	Autumn	5 ECTS
BIOE70078	Alternative Protein	Compulsory	N/A	Autumn	5 ECTS
BIOE70079	Frontiers in Alternative Protein Research	Compulsory	N/A	Autumn	5 ECTS
BIOE70080	Topics on Alternative Protein Research*	Compulsory	N/A	Autumn/ Spring	5 ECTS
BIOE70081	Planning for Research in Alternative Protein	Core	N/A	Autumn/ Spring	10 ECTS
BIOE70082	Alternative Protein Research Project	Core	N/A	All	60 ECTS
Credit Total					90
Programme Structure for part-time students					
Year 1 – FHEQ Level 7 You will study all core and compulsory modules. Normally, all compulsory modules will be taken in the first year to profit from the cohort wide activities and networking opportunities. The two core modules can be taken part-time in year 1 and 2. The compulsory modules will be offered once a year and can also be taken in year 2. *This module is considered as pass/fail and will not contribute to the overall weighted average used for classification of the programme.					
Code	Module Title	Core/ Compulsory Elective	Group	Term	Credits
Year 1					
BIOE70037	Computational and Statistical Methods for. Research	Compulsory	N/A	Autumn	5 ECTS
BIOE70078	Alternative Protein	Compulsory	N/A	Autumn	5 ECTS

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.

BIOE70079	Frontiers in Alternative Protein Research	Compulsory	N/A	Autumn-Summer	5 ECTS
BIOE70080	Topics on Alternative Protein Research*	Compulsory	N/A	Autumn/Spring	5 ECTS
BIOE70081	Planning for Research in Alternative Protein	Core	N/A	Autumn/Spring	10 ECTS
Year 2					
BIOE70082	Alternative Protein Research project	Core	N/A	All	60 ECTS
Credit Total					90

Award of a Postgraduate Certificate (PG Cert)

To qualify for the award of a postgraduate certificate you must have a minimum of 30 credits at Level 7.

Award of a Postgraduate Diploma (PG Dip)

To qualify for the award of a postgraduate diploma you have a minimum of 60 credits at Level 7 with no more than 10 credits as a compensated pass.

Award of a Master's 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
2. and no more than 10 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 and the designated dissertation or final major project module 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

As an accredited programme (TBC), students are subject to the standards set by the UK Engineering Council in relation to compensation. A maximum of 10 ECTS credits can be compensated across the entire programme.

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/pg/apply/requirements
Imperial's Quality and 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.