Programme Information		
Programme Title	Programme Code	HECoS Code
MSc Bioscience Futures: Communication, Innovation and Entrepreneurship	A3SF	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
PG Diploma - A3SFD	N/A	N/A	N/A	60	120
PG Certificate - A3SFC	N/A	N/A	N/A	30	60
The PG Certificate and PG Diploma are exit awards and are not available for entry. You must apply for and enter the MSc.					

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Medicine
Teaching Institution	Imperial College London	Department	National Heart and Lung Institute
Associateship	Diploma of Imperial College (DIC)	Main Location(s) of Study	Various- South Kensington (SW7 2AZ), White City (W12 7TA)
External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points		Biosciences	
FHEQ Level		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 Leads	Professor Sara Rankin Dr Anne Burke-Gaffney
Student cohorts covered by specification	2024-25 entry
Date of introduction of programme	October 24
Date of programme specification/revision	November 24

Programme Overview

You will study how your knowledge of the biosciences can be applied in a sustainable and ethical way to identify innovative solutions to global problems. Imperial College London has World leading research in the Biosciences. As such, we are well placed to ensure you have a clear understanding of current cutting-edge biotechnologies and provide the starting point for your own research in bioscience foresight, enabling you to predict future possibilities. This includes exploring and evaluating potential synergies of biotechnologies with other disciplines such as artificial intelligence (AI) and 'big data'. Learning will be experiential, researching and critically evaluating case studies of novel enterprises, innovation, and cutting-edge technologies in the biosciences. Programme modules are co-developed with experts in these areas. The course and authentic assessments are designed to develop enterprising skills and behaviours, you will become agile thinkers who can identify opportunities and readily assess levels of risk. Throughout your MSc you will have access to the Advanced Hackspace, allowing you to prototype your ideas. The Advanced Hackspace based at the White City campus consists of three purpose designed prototyping and fabrication spaces; Electronics and Digital Manufacturing Workshop, Biochemistry Lab and Mechanical Workshop; as well as dedicated technical support and guidance from our team of Hack Fellows and Hackspace experts. Effective communication is critical for success in any career in the biosciences. You will become adept in choosing and creating the most appropriate and effective form of communication for specific audiences, from members of the public to policy makers and venture capitalists. This will enable you to communicate complex Bioscience concepts with impact.

The course has been developed in close consultation with the Enterprise Division at Imperial College London which supports all aspects of technology transfer from writing patents to the translation and commercialisation of inventions. We work closely with the Imperial Enterprise Division and especially the Enterprise Lab which has developed programmes that support the cycle of student entrepreneurship from ideation to financing. These programmes have an impressive track record of success and have led to Imperial College London being rated the number one University in Europe for Entrepreneurship https://www.cityam.com/london-named-best-city-in-the-world-to-be-a-young-entrepreneur-beating-nyc-san-francisco-and-moscow/. This course is practical and experiential, and builds on this wealth of experience and expertise in the Biosciences, Innovations and Entrepreneurship. Moreover, through this programme you will have direct exposure to alumni of Imperial College London that are now entrepreneurs.

We will offer a wide range of placement opportunities for the work placement-based project. It is possible for projects to be carried out partly or wholly at an external organisation. You will have the opportunity to work in one of Imperials start-ups, to work with Imperial's Societal engagement team delivering GERF and Imperial Lates or with the Faculty Comms team, such that you can gather the 'real life' experience of working in Technology transfer, a start-up or a Biotech company, in communications, or furthering your practical understanding of applications of AI and big data in the Biosciences. Some placements will be in Imperial's vibrant start-up hub at White City: https://www.imperial.ac.uk/thinkspace/about-us/start-up-and-early-stage/

Graduate destinations include new start-ups, social enterprises, technology transfer offices, biotechnology companies, learned Societies, Consultancies, the civil service and the science engagement sector.

Learning Outcomes

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

PG Cert:	1. Ideate and create innovative solutions to 21st Century problems. 2. Forecast developments in bioscience, in an informed way, evaluating how other areas of science and technology such as artificial intelligence can drive innovation. 3. Appraise bioscience innovations for patentability and value and devise commercialisation strategies, considering different stakeholder perspectives. 4. Design, implement and evaluate creative activities to engage a range of different audiences in complex bioscience ideas/concepts.
Additionally, for the PG Dip:	5. Create resources to communicate bioscience research or technology with impact, for a range of audiences from the public to policy makers. 6. Translate complex bioscience ideas, concepts, futures and foresight into impactful science communications. 7. Develop and deliver pitches for novel solutions to bioscience challenges, based on market research, prototyping, ethical and sustainability considerations, and proposed funding strategies with contingency planning. 8. Critique proposals for new enterprises identifying risks and opportunities; and be able to receive/defend positive and negative feedback, in a professional manner. 9. Work collaboratively within a diverse team, negotiate roles effectively and contribute in a professional manner, to a shared task or project.
Additionally, for the MSc:	10. Identify opportunities for enterprising activities within the context of a work placement, within available resources and ethical and legal regulatory frameworks. 11. Formulate, present, communicate and reflect on project findings, points for improvement within a project or team and for personal development. 12. Identify ways for working with information/data, and personally, that provide agility, flexibility and ability to respond adeptly to future bioscience challenges
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	The minimum requirement will be a 2:1 UK Bachelor's degree in the Biosciences (or a comparable qualification recognised by the university). For further information on entry requirements, please go to: https://www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/

Non-academic Requirements	Applicants with 3 years relevant work experience may be considered for this course subject to interview with the Programme Director
English Language Requirement	Higher requirement Please check for other Accepted English Qualifications
Admissions Test/Interview	Applicants who are eligible will be invited to interview in which they will complete a 3-minute presentation based on a Bioscience paper, summarising the main findings and proposing one new potential application of the Biotechnology. This can be done in a unique format. All interviews will be 10 minutes carried out via an electronic platform (such MS Teams).

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

Learning & Teaching Approach

Learning and Teaching Delivery Methods

This full-time programme adopts an active learning strategy where the you are encouraged to be responsible for identifying your areas of weakness in knowledge and experience and using the programme resources and live online teaching sessions to learn both in collaboration with the teaching team and their peers, and on their own through self-directed learning.

The modules consist of various teaching technologies including asynchronous and synchronous elements by experts from Imperial College London and other top-rated institutions and industry and entrepreneurs. These teaching approaches may include:

- Asynchronous elements allowing you to engage at your own pace, such as reading/audios/videos/ pre-recorded lectures/ pre-recorded mini-lectures/web-based resources to read/listen/watch, as well as student-led tasks and quizzes to work on individually as well as in groups and prepare for the synchronous (live) sessions;
- Synchronous elements in a broad range of formats including live specialist lectures and mini-lectures, case-based discussion sessions, focused discussions, expert panel Q&As, student-led presentations, poster sessions, student-led 'bring your own challenge or case', 'mock scenario' sessions. Learning approaches such as flipped classroom, and team-based will be used, i.e., Mentimeter, Padlet etc.;
- Video recordings of the synchronous sessions, and often slides, for later review are provided;
- Workshops and practical sessions that promote learner participation and link skill acquisition and understanding with practice. These may include developing a creative engagement activity for a specific audience, ideation and prototyping, design thinking, systems thinking, developing a pitch;
- Online learning materials, quizzes and core and supplementary reading lists on Leganto all delivered via VLE e.g., Blackboard Learn or Insendi. Signposting to further learning materials such as useful videos, websites and conferences;
- Networking and cohort building through group work.

Overall Workload

Your overall workload consists of face-to-face lectures, group learning sessions and independent learning. While your actual contact hours may vary from module to module according to module content, the following gives the module durations and weighting, indicating how much time you will need to allocate to different activities at each stage of the programme. At Imperial College London, each ECTS credit taken equates to an expected total study time of 25 hours. Your workload will be 2250 hours per year (90 ECTS).

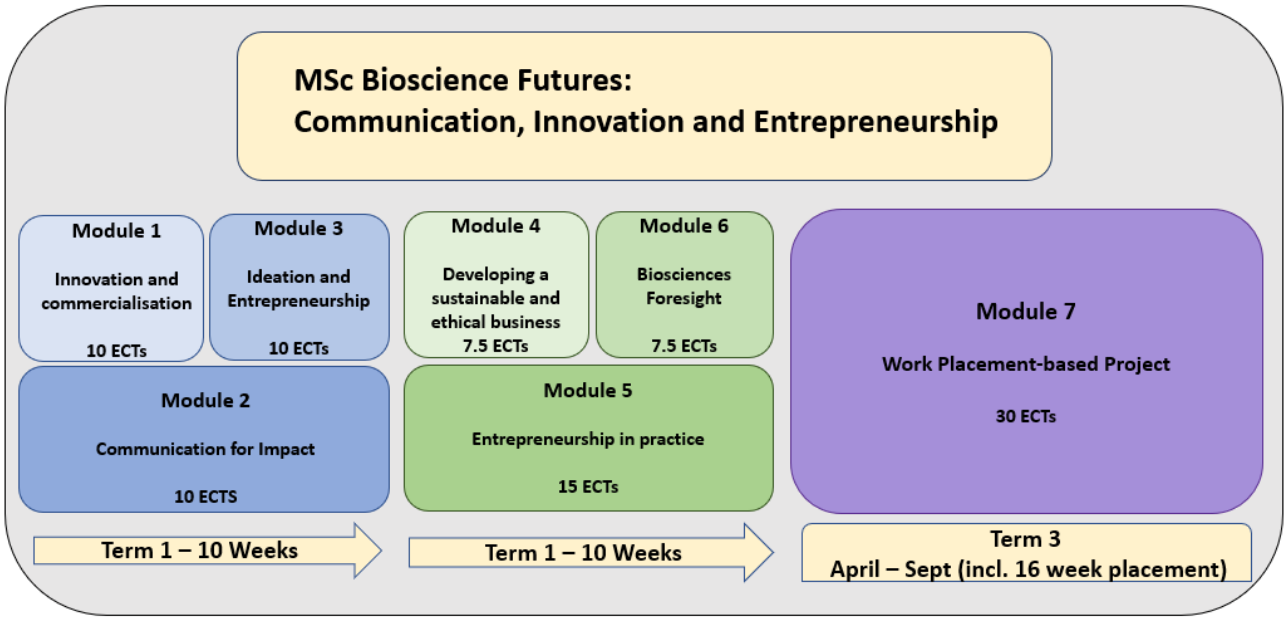


Image 1. MSc Bioscience Futures structure

Please refer to 'MSc Bioscience Futures_Module LO Map' for description of module content and mapped Learning Outcomes (Appendix 1).

Assessment Strategy

Assessment Methods

Methods of assessment

We have designed a range of authentic in-course assessments, you will not be required to take exams.

Assessment is treated as a dialogue between you and the teaching faculty. The student ownership of learning and improvement is stressed. We have designed authentic assessments that align with best practice, ensuring inclusive teaching, specifically for students with specific learning differences including dyslexia, dyspraxia, ADHD and autism.

The formative assessments help you to practice and develop skills in individual and in group settings. The teacher and peer feedback that you receive will inform how to improve your performance and you can also learn from observation of good practice that is modelled by presenters and module leaders and peers and external experts including entrepreneurs. Self-reflection and learning from the different methods of feedback (verbal or written, informal or formal) is encouraged.

The summative assessments are reflected in the module assignments which are designed to assess the intended learning throughout the programme, by the employment of skilled real-World outputs such as developing a commercialisation study based on a case provided by the technology transfer office, developing appropriate communication modalities for a range of specific audiences from policy makers or members of the public to venture capitalists, developing a Bioscience foresight mini conference, assessing the ethical and sustainability credentials of start-ups and Biotech businesses and ultimately working in a team to develop a potential new venture, putting into practice all the skills and knowledge you have learnt throughout the course. Each assessment is carefully selected to complement the module and to produce an authentic output that is related to the discipline. These assignments lead to the development of transferable professional skills that will be useful in your future career, most notably communication skills and team working skills, with the ability to give and receive critical feedback in a professional manner. Furthermore, your work will lead to practical demonstrations of the graduate attributes that have been achieved. You will show gains in communication skills in a variety of modalities from a variety of written platforms to presentation techniques.

As the course contains a number of summative group assessments, to ensure transparency and fairness, the programme will ensure the following approach to these:

1. Students will know when they apply that the programme involves elements of teamwork and group assessment.
2. Students will be briefed on their accountability to each other; encouraging them to draw up their own ground rules; suggest that students include provisions non-contributing group members.
3. Teams will be encouraged to maintain an online journal of their processes; this can be cross-referenced to any statement the students make, or any appeal about the mark.
4. Outputs can include a signed statement by all team members about role allocation and task completion.
5. Peer assessment: In modules 1 and 2, peer assessment will be used to adjust the final mark for each student. This process will be explained to all in detail at the beginning of each module.

An online plagiarism awareness course is released in Induction Week must be completed as part of Module 1. The certificate of completion must be presented before any assignment can be accepted.

The use of reflective presentations is included across modules. The purpose is to assess your grasp of the materials in that key module and assess and present to others about your development at each stage.

The final summative assessment is the placement which will be bespoke to this programme and your own interests. This is an opportunity in a real-world environment to demonstrate the practical application of the lessons learned during the year.

Academic Feedback Policy
Formative assessments submitted to the VLE will receive written feedback within 14 days. Formative assessments that are verbal and in-class (e.g., pitch), will receive verbal feedback in the session. All summative assessments will receive written feedback on the VLE from 2 examiners 14 days after the submission date. 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
Travel costs for placement	Mandatory	The price will vary dependant on where you live and where the placement is located.

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
NHLI70049	Innovations in Bioscience	Core		Autumn	10
NHLI70050	Communication for Impact	Compulsory		Autumn	10
NHLI70051	Ideation and Entrepreneurship	Compulsory		Autumn	10
NHLI70052	Developing a Sustainable and Ethical Business	Compulsory		Spring	7.5
NHLI70053	Entrepreneurship in Practice	Compulsory		Spring	15
NHLI70054	Bioscience Futures and Foresight	Compulsory		Spring	7.5
NHLI70055	Work based Project Placement	Core		Summer	30
				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 and Classification for Postgraduate Students

Award of a Postgraduate Certificate (PG Cert)
To qualify for the award of a postgraduate certificate you must have passed 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 must have passed modules to the value of no fewer than 60 credits at Level 7 and no more than 10 credits as a Compensated Pass.

Award of a Postgraduate Degree
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 15 credits as a Compensated Pass

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.

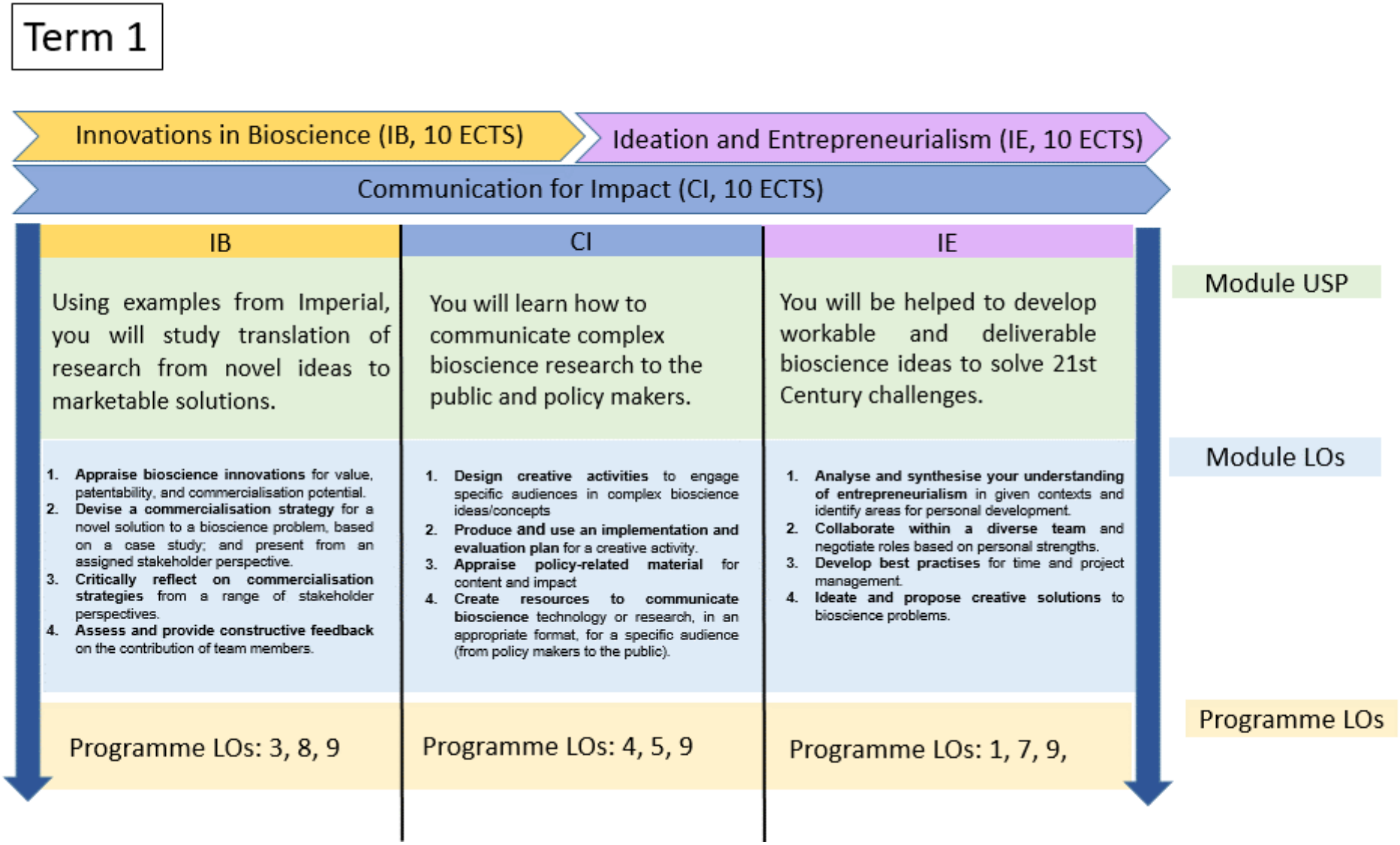
Your degree algorithm provides an appropriate and reliable summary of your performance against the programme learning outcomes. It reflects the design, delivery, and structure of your programme without unduly over-emphasising particular aspects.

Programme Specific Regulations

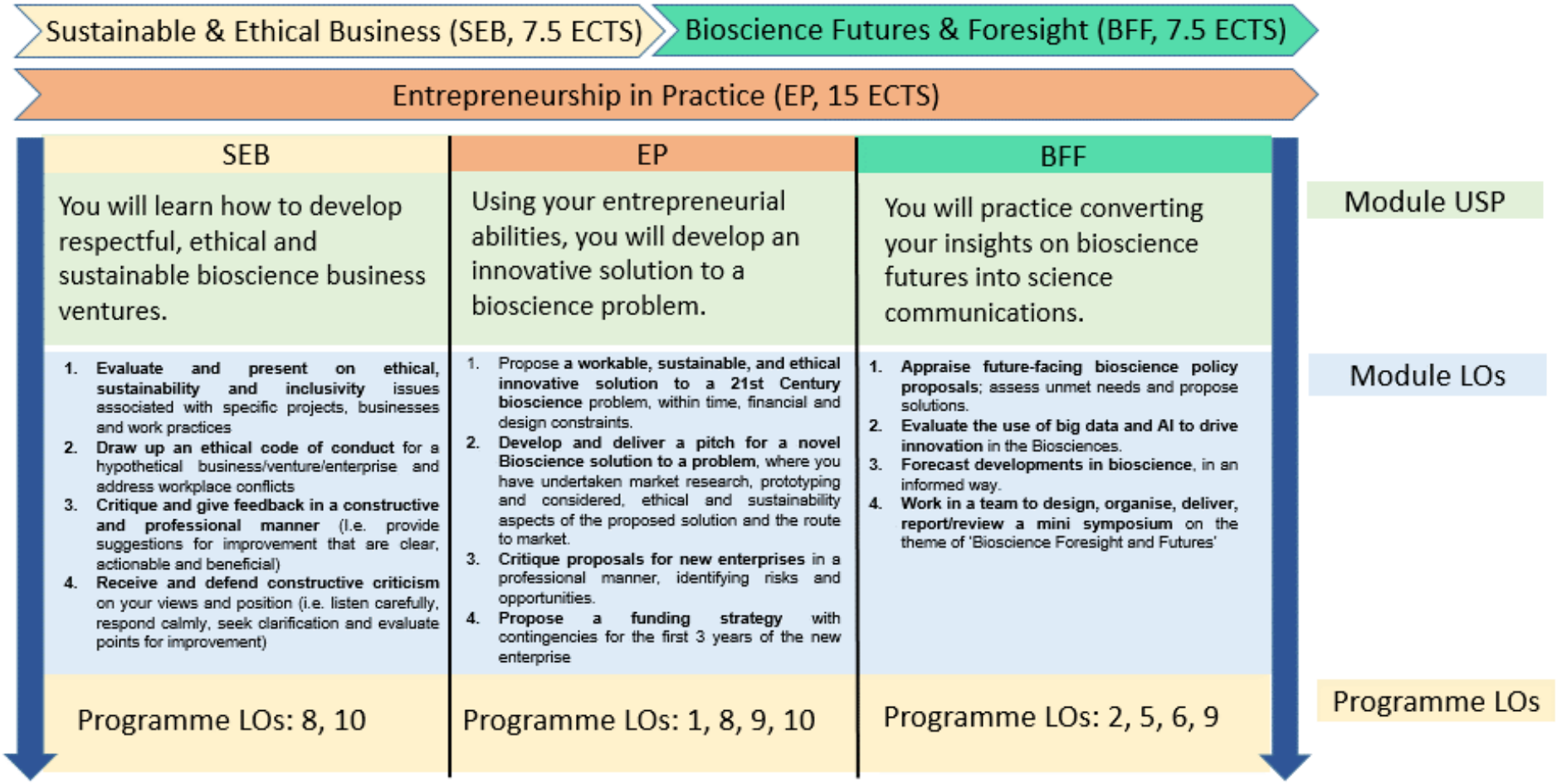
N/A

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 & 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.

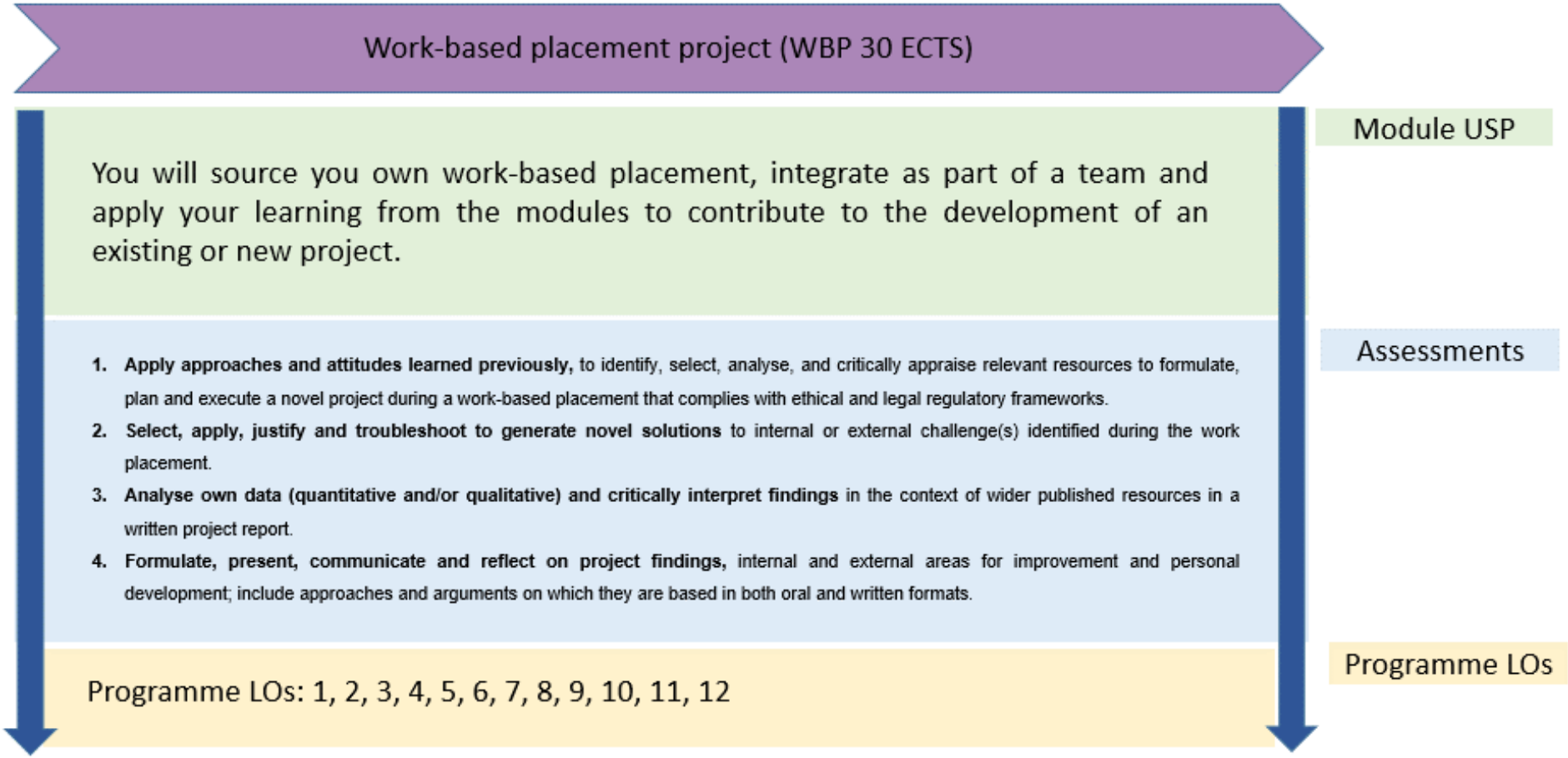
Appendix 1: MSc Bioscience Futures_Module LO Map



Term 2


Sustainable & Ethical Business (SEB, 7.5 ECTS)
Bioscience Futures & Foresight (BFF, 7.5 ECTS)
Entrepreneurship in Practice (EP, 15 ECTS)
SEB
EP
BFF
You will learn how to develop respectful, ethical and sustainable bioscience business ventures.
Using your entrepreneurial abilities, you will develop an innovative solution to a bioscience problem.
You will practice converting your insights on bioscience futures into science communications.
Module USP
1. Evaluate and present on ethical, sustainability and inclusivity issues associated with specific projects, businesses and work practices
2. Draw up an ethical code of conduct for a hypothetical business/venture/enterprise and address workplace conflicts
3. Critique and give feedback in a constructive and professional manner (I.e. provide suggestions for improvement that are clear, actionable and beneficial)
4. Receive and defend constructive criticism on your views and position (i.e. listen carefully, respond calmly, seek clarification and evaluate points for improvement)
1. Propose a workable, sustainable, and ethical innovative solution to a 21st Century bioscience problem, within time, financial and design constraints.
2. Develop and deliver a pitch for a novel Bioscience solution to a problem, where you have undertaken market research, prototyping and considered, ethical and sustainability aspects of the proposed solution and the route to market.
3. Critique proposals for new enterprises in a professional manner, identifying risks and opportunities.
4. Propose a funding strategy with contingencies for the first 3 years of the new enterprise
1. Appraise future-facing bioscience policy proposals; assess unmet needs and propose solutions.
2. Evaluate the use of big data and AI to drive innovation in the Biosciences.
3. Forecast developments in bioscience, in an informed way.
4. Work in a team to design, organise, deliver, report/review a mini symposium on the theme of 'Bioscience Foresight and Futures'
Module LOs
Programme LOs: 8, 10
Programme LOs: 1, 8, 9, 10
Programme LOs: 2, 5, 6, 9
Programme LOs

Term 3


Work-based placement project (WBP 30 ECTS)
You will source you own work-based placement, integrate as part of a team and apply your learning from the modules to contribute to the development of an existing or new project.
Module USP
1. Apply approaches and attitudes learned previously, to identify, select, analyse, and critically appraise relevant resources to formulate, plan and execute a novel project during a work-based placement that complies with ethical and legal regulatory frameworks.
2. Select, apply, justify and troubleshoot to generate novel solutions to internal or external challenge(s) identified during the work placement.
3. Analyse own data (quantitative and/or qualitative) and critically interpret findings in the context of wider published resources in a written project report.
4. Formulate, present, communicate and reflect on project findings, internal and external areas for improvement and personal development; include approaches and arguments on which they are based in both oral and written formats.
Assessments
Programme LOs: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Programme LOs