

Programme Information		
Programme Title	Programme Code	HECoS Code
MSc Reproductive and Developmental Biology PG Certificate Reproductive and Developmental Biology	For Registry Use Only	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 Certificate	4 months	Full time	Annually in October	30	60

The PG Certificate may be taken as an independent award, or as the first stage of studying for the MSc. Students may register for either the PG Certificate or the MSc when joining the College, and may be permitted to transfer between the awards.

Ownership			
Awarding Institution	Imperial College London	Faculty	Medicine
Teaching Institution	Imperial College London	Department	Surgery & Cancer
Associateship	Not applicable	Main Location(s) of Study	Hammersmith Campus

External Reference	
Relevant QAA Benchmark Statement(s) and/or other external reference points	Masters' Awards in Science
FHEQ Level	Level 7 – Masters'
EHEA Level	2 nd 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	Dr. Mark Sullivan

Student cohorts covered by specification	2019-20 entry and following years
Date of introduction of programme	October 1993
Date of programme specification/revision	March 2019

Programme Overview

The programme in Reproductive & Developmental Biology is based in the Institute of Reproductive & Developmental Biology (Hammersmith Campus, Imperial College London). It is designed for those who have a degree in a “bioscience” BSc, medicine or veterinary medicine who wish to expand their knowledge and experience of Reproductive & Developmental Biology. In the taught part of the MSc (October – February) you will study the three modules: “Gonads to Gametes” (including Development of the reproductive systems, reproductive endocrinology and gametogenesis), “Eggs to Embryos” (including fertilisation, preimplantation development and assisted reproduction, stem cell biology), and “Bumps to Babies” (including pregnancy, embryonic and foetal development, and the main complications thereof).

You will also gain experience of experimental approaches and techniques within the modules, integrated into the teaching provided. We also include generic scientific transferable skills as explicit parts of the taught modules of the course.

For the project of the MSc (March – August), you will undertake a project based within a research group. During the project you will learn both practical laboratory skills, and transferable skills of wide applicability. Teachers and research group leaders are established workers in their areas of expertise, and bring this expertise to the content of the MSc course. You will not be given practical experience of the techniques of Assisted Reproduction (In vitro fertilisation - IVF).

Graduates from this programme have a variety of next-step destinations; the most popular are taking a PhD, and working in an Assisted Reproduction unit. Others have started medical school, or gone into teaching, or entered careers that require critical and numerical skills.

The Postgraduate Certificate is flexible. On this course, you will take the first module ‘Gonads to Gametes (which is compulsory) and one of ‘Eggs to Embryos’ or ‘Bumps to Babies’). You will take the coursework assessments pertinent to the modules that you are taking.

Learning Outcomes

On completion of the PG Certificate, you will be able to:

1. Appraise critically the quality of published research in Reproductive & Developmental Biology, and integrate it to produce a variety of scientific outputs.
2. Evaluate the limits of current knowledge in Reproductive & Developmental Biology, and propose alternative explanations for controversies in the field.
3. Engage in self-directed and autonomous study, and take responsibility for meeting all the deadlines required and performance levels expected.
4. Work alongside peers to produce positive outcomes, giving and receiving constructive feedback.
5. Communicate advanced scientific concepts, in a manner appropriate to various audiences.

On completion of the MSc, in addition to the above outcomes, you will be able to:

6. Design with colleagues an investigation into a defined research question within Reproductive & Developmental Biology.
7. Work independently and as part of a bigger research group, to conduct laboratory research and trouble-shoot as necessary.

8. Analyse data using appropriate tools, and interpret it in the context of published findings.
9. Construct an overview of your findings, demonstrating reflection and predict future directions for research.
10. Defend and debate your findings with a scientific audience.

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	The minimum requirement is normally a 2:1 UK Bachelor's Degree with Honours in a Bioscience course such as Biomedical Science, Biology or Biochemistry (or a comparable qualification recognised by the College). Students with degrees in Medicine or Veterinary Science may apply. For further information on entry requirements, please go to https://www.imperial.ac.uk/study/pg/apply/requirements/pgacademic/
Non-academic Requirements	None
English Language Requirement	Higher requirement Please check for other Accepted English Qualifications
Admissions Test/Interview	Not applicable, except that interviews will be used for Special Case applications.

The programme's competency standards documents can be found at: www.imperial.ac.uk/students/academic-support/graduate-attributes

Learning & Teaching Approach

Learning and Teaching Delivery Methods

The overall approach to learning and teaching is to use a mixture of delivery methods, aligning these to the material that is to be considered. A flipped classroom approach will be taken to topics that are understood very thoroughly, by making information available to students before the contact session, and then using the time to ensure that students are engaging with the material, and also to resolve anything that is not clear. Students may also be asked to prepare for a joint discussion session.

Complex and controversial topics may be handled differently, with a more didactic style of teaching being used – but we will also ask students to engage with the complex material, as dealing with uncertainty is an important skill-set.

Independent learning is also required, to work towards set pieces of coursework, which will require reading around topics.

Academic skills (e.g. critique and review scientific literature, construct a high quality scientific argument) that are needed will be integrated into the modules, so students can gain experience of skills and approaches.

The laboratory project runs from March - August, and appropriate techniques and skills will be taught by experienced scientists. Students will also learn how to be part of an active research group; regardless of whether they go into research, group work is required in many roles, so these skills are valuable.

Overall Workload

Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the optional modules you choose to study, 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, as the MSc is a 90 ECTS course.

On the MSc course, 50% of the time is allocated to the taught modules and linked assessments (1,125 hours), and 50% to the laboratory project and writing the dissertation (1,125 hours).

There are three taught modules, so each will equate to 375 hours of teaching; about 75 hours per module (20%) will be contact time (lectures, seminars, class practicals), with the remainder being independent study. This independent study time will include opportunity for working towards formative and summative coursework.

The laboratory project is full time from late March until early September; mostly this will be laboratory work, with writing the dissertation mainly in the last 4 weeks.

Assessment Strategy

Assessment Methods

Formative sessions will be held during the taught part of each module. Some will be short pieces of work in the style of planned summative assessments, timed so that feedback can inform the summative work. Others will be class sessions to discuss approaches to coursework interactively, as these are often more authentic learning experiences.

The first module on 'Gonads to Gametes' will be assessed by two summative pieces of coursework, which will test learning outcomes 1-5. Together they will account for 16.7% of the overall marks for the course. These will involve working in small groups, but with individual marks awarded for each piece of work. One assessment will be a presentation, while the other will be a written document.

The second module on 'Eggs to Embryos' will be assessed by two summative pieces of coursework, which will test learning outcomes 1-5. Together they will account for 16.7% of the overall marks for the course. One assessment will require students to consider how experiments can be designed and write a summary. The other assessment will require the interpretation of scientific data.

The third module on 'Bumps to Babies' will be assessed by two summative pieces of coursework, which will test learning outcomes 1-5. Together they will account for 16.7% of the overall marks for the course.

One of the pieces of coursework will require that students work individually to critique the published literature and provide a detailed analysis of the literature.

The other piece of coursework will require that students work in small groups to provide summaries of information for a variety of audiences.

Module 4 (The project) contributes 50% of the overall marks for the course, and will be assessed by a Poster (late June, 7.5% of overall marks), Dissertation (deadline early September, 35% of overall marks) and Viva (7.5% of overall marks).

The project and dissertation tests LO 1-9, and requires that students need to integrate them during the laboratory work, and during the write-up. LO 10 will be tested by the poster, and particularly in the viva.

The external examiner will be present during the viva, and be actively involved in the viva process.

Students are required to pass each module (50% overall mark), but do not have to pass each piece of assessment, other than the project dissertation, which must score at least 50%.

Overall assessment:

Module 1 (16.7%): In course assessment – I (5% - 12%). In course assessment – II (5% - 12%)

Module 2 (16.7%): In course assessment – I (5% - 12%). In course assessment – II (5% - 12%)

Module 3 (16.7%): In course assessment – I (5% - 12%). In course assessment – II (5% - 12%)

Module 4 (50%): Poster (7.5%); Dissertation (35%); Oral examination (7.5%)

Academic Feedback Policy

Feedback will be provided on all summative pieces of work, and the format will vary depending on the type of assessment.

Written documents will be submitted on Blackboard / Turnitin, and written comments will be added to the work. This will identify the level of performance, and how the performance could be improved.

For presentations, a Proforma will be used that will give critique of the presentation (oral or poster), and also on the quality of subsequent discussion.

Pieces of work that require the application of particular skills (e.g. Critical Appraisal) will be included within the Written document process indicated above, with critique of the skills included.

For shorter pieces of work, feedback should be provided within 2 weeks.

For the coursework essay feedback should be provided within 3 weeks.

All pieces of work will be double-marked, and the average grade provided (A: $\geq 70\%$ distinction; B: $\geq 60\%$ merit; C: $\geq 50\%$ pass; D: $\leq 49\%$ fail) in conjunction with the feedback.

Formative assessments may not be set in a formal manner, but opportunities will be provided to practice assessment methods. These will be accompanied by brief comments within a week of completion.

The College'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

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

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

Programme Structure ¹					
Year 1 – FHEQ Level 7 (MSc) Students study all core modules.					
Code	Module Title	Core/ Elective	Group*	Term	Credits
	Gonads to Gametes	Core		1	15
	Eggs to Embryos	Core		1	15
	Bumps to Babies	Core		2	15
	Independent Research Project	Core		2-3	45
Credit Total					90
Year 1 - FHEQ Level 7 (PG Certificate) Students study RDB1, and one module from Group A (either RDB2 or RDB3). Note: RDB2 runs from Nov-Dec, and RDB3 from Jan-Feb.					
Code	Module Title	Core/ Elective	Group*	Term	Credits
	Gonads to Gametes	Core		1	15
	Eggs to Embryos	Elective	A	1	15
	Bumps to Babies	Elective	A	2	15
Credit Total					30

* 'Group' refers to module grouping (e.g. a group of electives from which one/two module(s) must be chosen).

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.

Classification of Postgraduate Taught Awards – MSc course.

The College sets the class of Degree that may be awarded as follows:

1. Distinction: The student has achieved an overall weighted average of 70.00% or above across the programme.
2. Merit: The student has achieved an overall weighted average of above 60.00% but less than 70.00%.
3. Pass: The student has achieved an overall weighted average of 50% but less than 60.00%.
 - a. For a Masters, students must normally achieve a distinction (70.00%) mark in the Independent Research Project module in order to be awarded a distinction.
 - b. For a Masters, students must normally achieve a minimum of a merit (60.00%) mark in the Independent Research Project module in order to be awarded a merit

For the MSc, all assessments are at level 7.

Award of a Postgraduate Certificate (PG Cert)

To qualify for the award of a postgraduate certificate a student must have a minimum of 30 credits at Level 7. For the PG Certificate in Reproductive & Developmental Biology, the student must pass Module 1 and either Module 2 or Module 3.

Progression requirements

A student may initially register for the PG Certificate, and then apply to transfer to the MSc course before the end of Term 1. Such applications will be considered on a case-by-case basis. Students who request the transfer will normally be expected to be performing at a level that is at least that of Merit (60.00% or more overall average), showing that they can work at the level needed for the MSc. Students may transfer in the same year as they complete the PG Certificate, or the following year.

Official college requirements for the award of a Postgraduate Degree

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 Fail;
3. met any specific requirements for an award as outlined in the approved programme specification for that award.

The level of all assessments in the MSc and PG Certificate is level 7.

Please find the full Academic Regulations at <https://www.imperial.ac.uk/about/governance/academic-governance/regulations/>

Please follow the prompts to find the set of regulations relevant to your programme of study.

Programme Specific Regulations

Not applicable.

Supporting Information

The Programme Handbook is available at: TBC

The Module Handbook is available at: TBC

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 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 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.

Modifications

Description	Approved	Date	Paper Reference
N/A	N/A	N/A	N/A