

Programme Information		
Programme Title	Programme Code	HECoS Code
Drug Discovery and Development: Multidisciplinary Science for Next Generation Therapeutics	F1U11T	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MRes	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	Chemistry
Associateship	Diploma of Imperial College (DIC)	Main Location(s) of Study	Various Imperial College locations (including White City campus and The Francis Crick Institute)

External Reference	
Relevant QAA Benchmark Statement(s) and/or other external reference points	Master's Degree in Chemistry
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 Lead	Professor Ed Tate and Dr Benjamin Schumann
Student cohorts covered by specification	2023-24 entry
Date of introduction of programme	October 11

Date of programme specification/revision	August 23
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Programme Overview

The field of drug discovery and development aims to produce the next generation of therapeutics for the treatment of diseases. This will provide a deeper understanding of the current global state of the discipline, as well as the future direction from leaders in the field.

Students will graduate from the course with a solid knowledge of the drug discovery process. This will build on their undergraduate degrees in relevant subjects (e.g. chemistry, biology, biochemistry etc.) by learning about emerging technologies and drug target selection, complemented by talks on clinical trials and the regulatory process.

Students will also be expected to develop their own ideas with guidance on the scientific process. This will challenge their understanding and help develop problem solving skills, with applications in both academia and industry. The field of drug discovery is rapidly evolving, and students will gain insight into current developments in academia and industry. Projects are designed to offer exposure at the cutting edge of the field.

Upon completion of this degree programme, students are expected to be ideally placed to apply their knowledge in industry or to undertake doctoral studies spanning multidisciplinary drug discovery.

Learning Outcomes

- The programme will enable **you** to:
1. **Demonstrate** a deep understanding of the core concepts in drug discovery and development from experts in the field. Undertaking the associated research within your chosen area, will help to **conceptualise** and **explore** theories. This will complement data analysis and scientific methods relevant to the field.
 2. **Employ** research techniques, including experimental design, problem solving, critical thinking, literature searching/critical analysis of the literature, and laboratory safety.
 3. **Independently evaluate** and **apply** the essential facts, concepts, principles, and theories relevant to the student's project.
 4. **Perform** research within a multidisciplinary environment, **developing** management and communication skills, including problem solving, project/research design, decision processes, collaboration, written and oral reports/presentations, and scientific publications.
 5. **Critically evaluate** your own and others' work in the literature, including an appreciation of novelty and significance.
 6. **Recognise and critically appraise** broader issues in research relevant to the research area.
 7. **Compose and deliver** written, oral, and visual science communications. These are effective methods to deliver the message to a variety of audiences.
 8. **Demonstrate** laboratory and/or computational **skills** required to perform scientific research.
 9. **Design** a novel research project and **advance** the project with innovative ideas
 10. **Propose** tractable research objectives for your research project

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	<p>The minimum requirement is normally a 2:1 UK Bachelor's Degree with Honours in a relevant science (or a comparable qualification recognised by the College).</p> <p>For further information on entry requirements, please go to PG: www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/accepted-qualifications/</p>
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Non-academic Requirements	None
English Language Requirement	Standard requirement (PG) Please check for other Accepted English Qualifications
Admissions Test/Interview	Candidates will be invited for interview online.

The programme's competency standards documents can be found at: www.imperial.ac.uk/chemistry/postgraduate/mres/

Learning & Teaching Approach

Learning and Teaching Delivery Methods

This programme aims to teach students the process of scientific research, whilst also placing into context the relevance of their work within the field. This will be achieved through a combination of talks from experts in the field, assessed taught modules, conducting and presenting novel research, and scientifically documenting the project's proposal and outcomes. This learning and teaching method builds on previously gained knowledge and skills, with the vision of equipping students with the expertise required for further study or employment.

The course is a MRes programme with most of the weighting focussed on the research component. The main routes of assessment are the oral examination, presentation, and research manuscript which are all skills practised by the modern scientist.

Students will be exposed to various teaching methods, which include lab work, computational work, attendance at departmental seminars, lectures given by experts in the field, and practicals. The delivery of this may be either in-person or online to give a 'multi-mode' teaching experience.

Overall Workload

The overall workload is distributed between face-to-face (either in-person or online) and independent learning. The contact hours will vary depending on the research project taken. The contact hours for the case study and journal club components will rely on taught material which is covered in term one. Using the standard guidelines of Imperial College London, each ECTS credit undertaken equates to an expected total study time of 25 hours. This equates to approximately 250 hours for the literature review, 250 hours on the case study dissertation, 250 hours for the journal club, and 1500 hours of individual research within the project to give a final total of 2250 hours.

Assessment Strategy

Assessment Methods

Each assessment is designed to test the student's knowledge and understanding to help their development. This will help the learner expand their skills as a scientist which are transferrable to further study/employment within the field or an associated profession.

The literature review allows the students to critically review literature in the field relevant to their research project. This will teach the student how to clearly and concisely condense large amounts of information for the reader and draw conclusions. In addition, the literature review will lay a solid foundation for further scientific writing within the degree programme (as applicable to later modules). The presentation element of the project proposal will help the students communicate science verbally, with the help of a visual presentation. This will be followed by questions which aim to test the student's knowledge of the subject area. Again, the skills learned here can be transferred to the delivery of other presentations in the course (Learning outcomes 1-7).

The case study dissertation builds on the skills learned in the previous module: chiefly, critical analysis of the literature to draw conclusions. This will help justify their views and rely on scientific reasoning. Students will be asked to choose a topic area that is unrelated to their research; this will help to expose them to new areas within the field and to gain an understanding beyond the scope of their research projects. This module replaces a formal examination and instead will teach the students on how to search literature to answer the question that has been posed. Students will use resources to problem solve as they would in further study/employment (Learning outcomes 1,2, 7-10).

The journal club assessment will amalgamate skills that students have learned in the previous two assessments: mainly, analysis of the literature and presentation skills. Each group of students will learn teamwork since the production, delivery, and assessment of the presentation is joint. The presentation will help the students gain confidence in this area, which will feed into the final presentation, whilst building on feedback from the previous module. Students will need to participate in wider reading to give their article some context

within the field. This will help expose them to lots of information and they will develop skills which rely on focussing on relevant material for a coherent talk. Students will also learn how to ‘teach’ their peers in explaining content (Learning outcomes 5-7).

The research project will be assessed through a manuscript, oral examination (*viva*), and a research presentation. The research manuscript will be a holistic document that will evaluate scientific understanding, presenting research in a coherent manner, analysis of relevant experimental data, conclusions drawn from the research, and future direction of the project based on findings in a journal style template. At the presentation, the student will be assessed on the ability to communicate their scientific research effectively to a wide audience. This should be given in a clear and concise manner, utilising relevant visual tools. The presenter will also be marked on the quality of responses to the questions asked. This aims to teach the student how to defend their research and display the knowledge they have gained. The *viva voce* will scrutinize the student’s knowledge and understanding of relevant literature within the field. Students will need to keep up to date with relevant research within their field to show awareness of the current state of the art. Students should expect to be tested around methodology/experimental or analytical techniques, research outcomes, and previous knowledge that is typically covered at the undergraduate level. The student will gain a holistic view of their research and how this work builds on their undergraduate degree (Learning outcomes 1-10).

Academic Feedback Policy

With the exception of the major research project module, you will receive feedback within 2 weeks of submission and where this is not possible students will be advised. This feedback should inform learning and performance in subsequent modules.

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/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
Laptop with camera and microphone	Mandatory	£400-600

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 Structure¹**Year 1 - FHEQ Level 7****You will study all core and compulsory modules.**

Code	Module Title	Core/ Compulsory/ Elective/	Group	Term	Credits
CHEM70055	Literature Review (including project Proposal) and Project Proposal Presentation	Core	N/A	Autumn-Spring	10
CHEM70047	Case Study Dissertation	Compulsory	N/A	Autumn-Summer	10
CHEM70054	Drug Discovery Journal Club	Compulsory	N/A	Spring-Summer	10
CHEM70053	Drug Discovery and Development Research Project	Core	N/A	Spring-Summer	60
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 (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 15 credits as a Compensated Pass.

Classification of Postgraduate Taught Awards

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

3. Distinction: 70.00% or above.
4. Merit: 60.00% or above but less than 70.00%.
5. 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 upon enrolment.
The Module Handbook is available upon enrolment.
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.