

The background of the cover is a photograph of a modern building at night. The building has a dark blue facade with large glass windows that are illuminated from within, showing office interiors. The sky is a deep blue. In the foreground, there is a walkway with a railing, and two people are walking away from the camera, their figures slightly blurred. The overall atmosphere is professional and modern.

**Imperial College
London**

**Faculty of Natural Sciences
Department of Mathematics**

**MSc
Mathematics and Finance**

STUDENT HANDBOOK

2018-19

Contents

Welcome to the College	4
Our Principles	5
Welcome from the Graduate School	6
The Graduate School	7
Welcome from the Graduate Students' Union (GSU)	8
1. Introduction to the Department	9
Welcome from Head of Department	9
Welcome from PG Student Representative	9
Welcome from Programme Representative	10
Academic and Administrative staff	11
English language requirement	12
Attendance and absence	12
Key dates 2018-19	12
2. Programme Information	13
The Mathematical Finance Section	13
Personal Tutors	14
The MSc: inside out	15
Blackboard	15
The Alumni network	15
Meeting with Practitioners	15
Programme Structure	15
Autumn Term 29 September – 14 December 2018	15
Spring Term 5 January–22 March 2019	16
Summer Term 27 April–30 September 2019	16
Placements and project	20
Overview	20
Company presentations	21
CV Book	21
Student referral	21
Placement requirements	21
Imperial Mobile app	22
Imperial Success Guide	22
3. Assessment	23

Degree Classification	23
Marking criteria MSc thesis	24
Instruction to Candidates for Examinations	25
Plagiarism	26
Collusion:	26
Exam offences	26
Dishonest practice.....	26
4. Board of Examiners	26
5. Location and Facilities	27
6. Working While Studying	28
7. Health and Safety	28
8. College Policies and Procedures	30
Regulations for Students	30
Academic Feedback Policy	30
Provisional Marks Guidance	30
Late Submission Policy	30
Academic Misconduct Policy and Procedures	30
Appeal and Complaints Procedures	31
Student Disciplinary Procedure	31
Intellectual Property Rights Policy	31
Use of IT Facilities	31
9. Well-being and Advice	31
Student Space	31
Departmental support and College tutors	32
Mathematics Department PG Welfare Officer	32
Advice services	32
Health Services	34
Disability Support	34
Mathematics Department Disability Officer.....	34
Library and IT	35
Support for International Students	35
10. Student Records and Data	36
11. Work-life Balance	36
Imperial College Union	36
Graduate Students' Union	36
Physical Activity Sport	37
12. Student feedback and representation	37

Feedback from Students	37
Student Representation.....	37
Staff-Student Committee	37
13. Student Surveys	37
14. And finally	38
Alumni Services	38
Opportunities for Further Study	38

Welcome to the College

Congratulations on joining Imperial College London, the only university in the UK to focus exclusively on science, medicine, engineering and business.

From Fleming's discovery of Penicillin to Gabor's invention of holography, Imperial has been changing the world for well over 100 years. You're now part of this prestigious community of discovery and we hope you will take this opportunity to make your own unique contribution.

We're committed to providing you with the very best academic resources to enrich your experience. We also provide a dedicated support network and a range of specialist support services to make sure you have access to the appropriate help, whether that's further training in an academic skill like note taking or simply having someone to talk to.

You'll have access to an innovative range of professional development courses within our Graduate School throughout your time here, as well as opportunities to meet students from across the College at academic and social events – see page 6 for more information.

We actively encourage you to seek out help when you need it and try to maintain a healthy work-life balance. Our choice of over 380 clubs, societies and projects is one of the largest of any UK university, making it easy to do something different with your downtime. You also have access to gym and swimming facilities (following an annual fee of £30 in 2018-19) across our campuses.

As one of the best universities in the world, we are committed to inspiring the next generation of scientists, engineers, clinicians and business leaders by continuing to share the wonder of what we do through public engagement events. Postgraduate students, alongside our academics and undergraduate students, make a significant contribution to events such as our annual Imperial Festival and our term-time Imperial Fringe events – if you're interested in getting involved then there will be opportunities for you to do so.



Our Principles

In 2012 the College and Imperial College Union agreed 'Our Principles' a series of commitments made between students and the College. The Principles are reviewed annually by the Quality Assurance and Enhancement Committee and changes recommended for Senate approval.

Imperial will provide through its staff:

- A world class education embedded in a research environment
- Advice, guidance and support
- The opportunity for students to contribute to the evaluation and development of programmes and services

Imperial will provide students with:

- Clear programme information and assessment criteria
- Clear and fair academic regulations, policies and procedures
- Details of full programme costs and financial support
- An appropriate and inclusive framework for study, learning and research

Imperial students should:

- Take responsibility for managing their own learning
- Engage with the College to review and enhance provision
- Respect, and contribute to, the Imperial community

The Imperial College Students' Union will:

- Support all students through the provision of independent academic and welfare assistance
- Encourage student participation in all aspects of the College
- Provide a range of clubs, societies, student-led projects and social activities throughout the year
- Represent the interests of students at local, national and international level



www.imperial.ac.uk/students/our-principles

Welcome from the Graduate School



**Professor Sue Gibson,
Director of the
Graduate School**

The Graduate School has several roles but our main functions are to provide a broad, effective and innovative range of professional

development workshops and to facilitate interdisciplinary interactions by providing opportunity for students to meet at academic and social events. Whether you wish to pursue a career in academia, industry or something else, professional skills development training will improve your personal impact and will help you to become a productive and successful researcher.

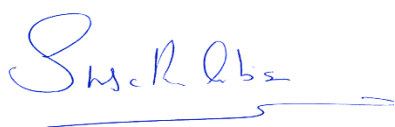
Professional development courses for Master's students are called "Masterclasses" and they cover a range of themes, for example, presentation skills, academic writing and leadership skills

(<http://www.imperial.ac.uk/study/pg/graduate-school/professional-skills/masters/>). All

Masterclasses are free of charge to Imperial Master's students and I would encourage you to take as many as you can to supplement your academic training. The Graduate School works closely with the Graduate Students' Union (GSU) and is keen to respond to student needs so if there is an area of development training, or an activity that you would like us to offer, but which is not currently provided, please do get in touch (graduate.school@imperial.ac.uk).

The Graduate School also runs a number of exciting social events throughout the year which are an opportunity to broaden your knowledge as well as to meet other students and have fun. You should regularly check the Graduate School's website and e-Newsletters to keep up to date with all the events and development opportunities available to you.

Finally, I hope that you enjoy your studies here at Imperial, and I wish you well.



Sue Gibson



**Dr Janet De Wilde,
Head of Postgraduate
Professional
Development**

I would like to welcome you to the Graduate School programme for postgraduate professional

development. Our team of tutors come from a wide variety of experiences and we understand just how important it is to develop professional skills whilst undertaking postgraduate studies and research. Not only will this development improve success during your time at Imperial College, but it will also prepare you for your future careers. We are continually working to develop the courses we offer and over this year you will see a range of new courses including face-to-face workshops, interactive webinars and online self-paced courses. I encourage you to explore and engage with the diverse range of opportunities on offer from graduate school and I wish you well in your studies.

Janet De Wilde

The Graduate School

You automatically become a member of the Graduate School when you register as a postgraduate student at Imperial.

The Graduate School has been set up to support all postgraduate students at the College through:

- Training and development courses
- Networking activities, social and academic events to encourage cross-disciplinary interactions
- Forums to represent the views of postgraduate students throughout the College

'Masterclass' professional skills courses


You can see the full range of free professional skills courses for postgraduate students on the Graduate School website:


 www.imperial.ac.uk/study/pg/graduate-school/professional-skills/masters


All courses can be booked online.



Contact us

 Level 3, Sherfield Building, South Kensington Campus

 020 7594 1383

 graduate.school@imperial.ac.uk

 www.imperial.ac.uk/graduate-school

Welcome from the Graduate Students' Union (GSU)

I am delighted to welcome you to Imperial College! Let me introduce you to the Graduate Students' Union (GSU). We are the representative body defending your interests as a postgraduate student in major decisions taken by the College. Beyond that, we work towards building a thriving postgraduate community that spans faculties and where students effectively communicate in an interdisciplinary way. Our committee is comprised of motivated postgraduate students like yourself, who have been appointed in university-wide elections and volunteer to make your experience at Imperial as fulfilling and enjoyable as possible.

So, what are we up to for this coming year 2018/19? We are going to focus on three major areas of action:

- Continue improving post-graduate well-being by increasing the quality of supervision and by creating strategies to tackle common mental health challenges in higher education.
- Develop the GSU to become central to the postgraduate community by improving the two-way flow of information, between the GSU and you.
- Organise exciting events around the topics of well-being, interdisciplinary research, and entrepreneurship.

As the GSU president, I would like to emphasise that Imperial College London is relying on its postgraduate students to maintain its position as a front-runner in world-class research and teaching. For us, the GSU, to be successful we need to receive as much of your input as possible. We want to work with you, for you!

Finally, I hope that you have a fantastic time here at Imperial and take advantage of the richness of opportunities that awaits you. If ever you have questions or ideas to share with us, please do not hesitate to get in touch with us and we are looking forward to seeing you at our events!

Ute Thiermann, GSU President 2018/19

 gsu.president@imperial.ac.uk



1. Introduction to the Department

Welcome from Head of Department



Dear Colleague,

Welcome to the Department of Mathematics at Imperial College.

I hope that your time here as a postgraduate student is both productive and fruitful.

Best wishes with your studies.

Prof David van Dyk

Welcome from PG Student Representative



Dear New MSc Students,

Welcome to the Mathematics Department at Imperial. The Department is eager to help you make your year of study a satisfying period of learning and creativity.

Please read on. Your success and comfort will depend on your familiarity with the essentials of being an MSc student. I know you may experience a degree of information overload initially. But read at least this page and keep the welcome pack within reach for reference.

(1) **Engage:** Mathematics and science are social activities. Your fellow students across the department and throughout the college are wonderful resources of help, friendship, inspiration and creative stimulation, so get involved.

(2) **Academic and administrative support:** The intention is that you develop a constructive, and hopefully friendly and fulfilling, relationship with the lecturers of the courses and your project supervisor.

(3) **Depth and breadth:** Good mathematics and science needs the right balance between depth and breadth. One inevitably needs a thorough knowledge of ideas, methods and techniques from as broad a field as practically possible. Through breadth one may become aware of existing approaches that can turn out to be helpful when working on specific problems. Breadth is also needed in order to know what today's interesting and important open problems are. On the other hand, depth is needed to ensure that one's level of understanding is sufficiently detailed to allow one to make creative contributions.

During your MSc study it is a good idea to attend seminars and the department colloquia, participate in discussion groups, etc. and in general feed your curiosity.

I sincerely wish the next year may lead you to the insights and achievements you are hoping for,

Prof Henrik Jeldtoft Jensen

Welcome from the Programme Directors

Welcome to the MSc in Mathematics and Finance in the Department of Mathematics, Imperial College London. We hope you will enjoy studying here, and take profit from all the opportunities offered by the department and the College as a whole.

Mathematical finance is a subject that is both mathematically challenging and deployed every day by sophisticated practitioners in the financial markets. Our objective is to provide you with everything you need in order to get into this area at a level where you can understand – and contribute to – the latest progress.

To achieve this, we have designed a full-year course, consisting of lectures and a research project. Through the modules offered during the year, you will learn the mathematical tools used on financial markets and become aware and critical of current practices in the financial industry at large: some modules concentrate on finance and economics background, including notions of arbitrage and risk management, while others provide training in fundamental mathematics (stochastic analysis, partial differential equations); several modules, statistics, numerical methods, (C++) programming will allow you to test the mathematical theory against real data, and a range of elective modules to choose from will give you the opportunity to specialise yourself on some specific areas of mathematical finance.




































The final part of the curriculum is devoted to a research project which culminates in an MSc thesis.

In addition, a certain number of modules are offered by the College, covering a range of transferable skills such as presentation, academic writing and negotiation skills.

This booklet provides an overview of the programme structure. We encourage you to read it carefully and to keep it for future reference.

Dr Antoine Jacquier
Dr Mikko Pakkanen

Academic and Administrative staff

 Agnieszka Damasiewicz-Niccolai MSc Administrator	 Huxley 652  0207 594 2843  a.damasiewicz@imperial.ac.uk	
 Rula Murtada MSc Program Coordinator	 809 Weeks  0207 594 8487  r.murtada@imperial.ac.uk	
 Dr Antoine Jacquier MSc in Mathematics & Finance Programme Co-Director	 804 Weeks  020 7594 8569  a.jacquier@imperial.ac.uk	
 Dr Mikko Pakkanen MSc in Mathematics & Finance Programme Co-Director	 801 Weeks  020 7594 8541  m.pakkanen@imperial.ac.uk	
 Prof Damiano Brigo Chairman of Mathematical Finance	 805 Weeks  020 7594 2932  damiano.brigo@imperial.ac.uk	
 Dr Tony Bellotti PG Welfare Officer	 522 Huxley  020 7594 8521  pgr.welfare@imperial.ac.uk	
 Prof Henrik Jeldtoft Jensen Director of Postgraduate Studies	 1201, 12th Floor, Electrical Engineering  0207 594 9853  pgr.director@imperial.ac.uk	

English language requirement

If you are not a native English speaker you must meet the College's English language requirements.

See the Admissions website for details:

 www.imperial.ac.uk/study/pg/apply/requirements/english

For information on English language support available while you're here, see page 27.

Attendance and absence

You must inform your Senior Postgraduate Tutor if you are absent from the College for more than three days during term. If the absence is due to illness you must produce a medical certificate after seven days. If you miss an examination through illness you must contact your Senior Postgraduate Tutor on the day and provide a medical certificate within five working days. If illness has impacted on your ability to take assessment, you should seek advice and support about making a claim for mitigating circumstances. Please note that there is a deadline of 5 working days from the date the assessment is due (hand-in date or examination date for example) to make a claim.

The Registry will be informed of all student non-attendances as the College is obliged to report the non-attendance of students on Tier 4 visas to the Home Office.

Key dates 2018-19

Term dates

Autumn term:	29 September - 14 December 2018
Spring term:	5 January - 22 March 2019
Summer term:	27 April- 28 June 2019

Closure dates

Christmas/New year:	24 December 2018 –1 January 2019 (College reopens on 2 January 2019)
Easter holiday:	18 April - 23 April 2019 (College reopens on 24 April 2019)
Early May bank holiday:	6 May 2019
Spring bank holiday:	27 May 2019
Summer bank holiday:	26 August 2019

Key events

Monday 1 - Friday 5 October 2018:	Welcome week programme
May 2019	Examinations Spring term

Mid July 2019:	Release of informal results
12 September 2019	Project Submission Deadline
Mid-late October 2019:	Final meeting Board of Examiners
Early-mid November 2019:	Results released by Registry
May 2020:	Graduation Ceremony

2. Programme Information

The Mathematical Finance Section

The Mathematical Finance Section is part of the Mathematics Department in Imperial College London. Every staff member in the Section has regular office hours, which will be made available at the beginning of his lectures, or on his webpage.

The Mathematical Finance group in Imperial College London is one of the largest in the world, and the research interests of its members (see below) span broad areas of the field. As a large group, a number of research-related activities are organised throughout the year, including seminars, conferences, colloquia, providing a view of cutting edge research in the area of mathematical finance and stochastic analysis. Most seminars and conferences are free to attend and registration may or may not be required. You are more than welcome, and in fact strongly encouraged, to attend some. Full details can be found on the section website www3.imperial.ac.uk/mathfin/pgprogrammes/msc.

Members of the Mathematical Finance Section and research interests

Dr Christopher Barnett (c.barnett@imperial.ac.uk)

Webpage: <http://www.imperial.ac.uk/people/c.barnett>

Research Interests: vector integration theory, non-commutative probability, von Neumann algebras and von Neumann regular rings, mathematical finance.

Professor Nicholas Bingham (n.bingham@imperial.ac.uk)

Webpage: <http://www.imperial.ac.uk/people/n.bingham>

Research Interests: limit theorems in probability, topological regular variation, stationary processes and prediction theory, Lévy and other models in mathematical finance.

Professor Damiano Brigo (damiano.brigo@imperial.ac.uk)

Webpage: <http://www.imperial.ac.uk/people/damiano.brigo>

Research Interests: valuation and pricing, risk measurement, liquidity risk, credit and default modelling, counterparty risk, nonlinear valuation, differential geometric approach to statistics, stochastic differential geometry, nonlinear stochastic filtering.

Dr Thomas Cass (thomas.cass@imperial.ac.uk)

Webpage: <http://www.imperial.ac.uk/people/thomas.cass>

Research Interests: Rough Paths, Gaussian processes, Malliavin calculus, McKean-Vlasov-type models for large populations of interacting agents, Stochastic differential geometry.

Professor Rama Cont (Visiting Professor, r.cont@imperial.ac.uk)

Webpage: <http://www.imperial.ac.uk/people/r.cont>

Research Interests: stochastic analysis, stochastic processes and mathematical modelling in finance, extreme market risks, discontinuities in market behaviour, endogenous risk, systemic risk.

Professor Mark Davis (mark.davis@imperial.ac.uk)

Webpage: <http://www.imperial.ac.uk/people/mark.davis>

Research Interests: stochastic analysis and financial mathematics, credit risk models, pricing in incomplete markets and stochastic volatility.

Dr Giuseppe Di Graziano (Visiting Professor, g.di-graziano@imperial.ac.uk)

Webpage: <http://digraziano.co.uk/peppe1/Home.html>
Research Interests: *algorithmic trading, pricing, commodities.*

Dr Blanka Horvath (Visiting Research Fellow, b.horvath@imperial.ac.uk)
Webpage: <https://www.imperial.ac.uk/people/b.horvath>
Research Interests: *robust asymptotic and numerical methods for degenerate processes, asymptotic methods, heat kernel expansions, smile asymptotics for local and stochastic volatility models.*

Dr Antoine Jacquier (a.jacquier@imperial.ac.uk)
Webpage: <http://www.imperial.ac.uk/people/a.jacquier>
Research Interests: *large deviations, asymptotic methods, volatility modelling*

Dr Richard Martin (Visiting Professor, richard.martin1@imperial.ac.uk)
Webpage: <https://uk.linkedin.com/in/richard-martin-3625467>
Research Interests: *mathematical modelling of credit including fundamentals, derivatives and portfolios.*

Dr Eyal Neumann (e.neumann@imperial.ac.uk)
Webpage: <http://eyaln13.wixsite.com/eyal-neuman>
Research Interests: *probability and stochastic processes, interacting particle systems, stochastic partial differential equations, mathematical finance.*

Dr Mikko Pakkanen (m.pakkanen@imperial.ac.uk)
Webpage: <http://www.mikkopakkanen.fi/>
Research Interests: *ambit stochastics, limit theorems in probability, market microstructure, limit order books, realised volatility, statistical inference, stochastic volatility.*

Dr Andrea Pallavicini (Visiting Professor, a.pallavicini@imperial.ac.uk)
Webpage: <https://www.linkedin.com/in/andreapallavicini>
Research Interests: *credit, interest-rate and equity derivatives, FX and commodity models.*

Dr Pietro Siorpaes (p.siorpaes@imperial.ac.uk)
Webpage: <https://www.maths.ox.ac.uk/people/pietro.siorpaes>
Research Interests: *mathematical finance, probability, general theory of processes, optimal investment, utility based pricing, stochastic calculus, mathematical finance.*

Prof Harry Zheng (h.zheng@imperial.ac.uk)
Webpage: <http://www.imperial.ac.uk/people/h.zheng>
Research Interests: *stochastic control, optimisation, financial mathematics.*

Personal Tutors

Each student is assigned a personal tutor from the Mathematical Finance Section, with whom a meeting is arranged during the first week of term. The tutor is the first point of contact and offers advice regarding module selection and other matters as needed. Your personal tutor is likely to be one of the people you may ask later for reference letters; it is therefore advisable that he gets to know you, and you are encouraged to keep in touch with him while enrolled in the MSc and to keep him informed about any factors, such as illness, that may affect performance. Communication between a student and his/her personal tutor (and potentially the Course Director) is treated in full confidentiality. The personal tutor is not responsible for administrative issues, and for any such matter, Louise Rowland, the MSc Administrator, will be able to help you.

Should you have any difficulties contacting your personal tutor, you are strongly encouraged to contact the MSc Course Directors, Dr Antoine Jacquier and Dr Mikko Pakkanen.

The MSc: inside out

Blackboard

Most of the information you shall need during the year, from lecture notes, coursework, past exams, to timetables and special events are available on Blackboard: <https://bb.imperial.ac.uk>. A calendar with all events and timetables can be found on your personal Blackboard.

The Alumni network

Part of the strength of the programme, apart from its academic contents, is its large network of alumni since its inception in 2000. The Imperial College Mathematics and Finance MSc Alumni Group is a LinkedIn group dedicated to alumni of the programme, and advertises job positions and events:

<https://www.linkedin.com/groups/4807498>

Several events will be organised throughout the year to allow you to expand your network. In particular, the annual MSc Alumni reception will take place, 9 October. More information will be given in due time.

Meeting with Practitioners

Compulsory weekly meetings with practitioners are organised, in order to familiarise yourself with the many sides of the financial industry, from hard-core quantitative research to hedge funds, risk management, regulators, software development,.... These meetings will also help you find a project for the end of the year. You are strongly encouraged to be proactive during those.

Programme Structure

To qualify for the degree of MSc in Mathematics and Finance, you must take examinations in ten modules, achieving a passing grade (50%) in at least eight of them, an overall average of at least 50%, and at least 40% in each examination. You must achieve a grade of at least 50% in the Project Thesis at the end of the year. The ten modules taken must include the seven core modules. The remaining three modules can be selected from the available electives.

Autumn Term 29 September – 14 December 2018

Week 1 There are three special, non-assessed introductory short modules:

- Mathematical Analysis (Dr Barnett)
- Probability (Dr Kalinin)
- Introduction to Python and R for finance (Dr Jacquier)

Weeks 2-11

The following four core modules must be taken:

- M5MF22 Mathematical Finance: an Introduction to Option pricing (Dr Siorpaes)
- M5MF3 Stochastic Processes (Dr Cass)
- M5MF10 Quantitative Risk Management (Dr Pakkanen)
- M5MF38 Statistical Methods in Finance (Dr Jacquier)

Two elective modules are available in the autumn term:

- M5MF12 Algorithmic Trading and Machine Learning (Dr Di Graziano)
- M5MF21 Computing in C++ (I) (Dr Nürnberg)

Spring Term 5 January–22 March 2019

Week 1 Examinations on the Autumn Term modules.

Weeks 2-11

You must take the following three core modules:

- M5MF25 Computing in C++ (II)(Dr Nürnberg)
- M5MF30 Interest Rate Models with Credit Risk, Collateral, Funding Liquidity Risk and Multiple Curves (Prof Brigo)
- M5MF4 Simulation Methods for Finance (Dr Zheng)

In addition, the following elective modules are available:

- M5MF2 Numerical Methods for Finance (Dr Jacquier)
- M5MF6 Advanced Methods in Derivative Pricing (Dr Tse)
- M5MF46 Convex Analysis and Optimization (Dr Siorpaes)
- M5MF47 Stochastic Differential Equations (Dr Cass)
- M5MF48 Data Analysis and Machine Learning (Dr Bilokon)
- M5MR14 Path-dependent Partial differential equations

Summer Term 27 April–30 September 2019

Weeks 1-2 Examinations of the Spring Term modules.

Weeks 3-9 Project work begins.

Thesis submission deadline: no later than 16:00, 12 September, 2019

Notes:

1. You are entitled to attend any module, whether or not you take the examination. You must take the examinations in all core modules and in at least two, and at most three, elective modules. Before the end of each term you will be asked to complete a form stating what examinations you plan to take.
2. Examination arrangements vary. Each module, except C++, is assessed by a three-hour written examination in the beginning of the following term. In most cases, a component of assessed coursework, or a small project to be completed in a limited time, will also be required. The lecturer will specify early in the term exactly what the examination arrangements will be. Previous examination papers are usually available.
3. ECTS credits: The lecture modules taken together are worth 72 ECTS, and the project 18 ECTS.

Module Descriptions

Core modules

Autumn Term

Mathematical Finance: an Introduction to Option Pricing Theory (N. Bingham)

This module is an introduction to option pricing theory, a core area of Mathematical Finance, and its mathematical and conceptual underpinnings. The goal is to familiarise students with the tools and methods of continuous-time arbitrage pricing theory, in the setting of the Black-Scholes model. Probabilistic tools - Brownian motion, the Ito integral, stochastic calculus- will be introduced in a self-contained manner and further explored in the [Stochastic Processes](#) module.

Stochastic Processes (T. Cass)

This module gives an introduction to probability theory and measure theory and introduces stochastic processes and the basic tools from stochastic analysis to provide the mathematical foundations for option pricing theory. It includes an intermediate introduction to axiomatic probability theory and measure theory, explaining notions like probability spaces, measures, measurable functions, integration with respect to measures, convergence concepts for random variables, joint distributions, independence and conditional expectations. It studies stochastic processes in discrete and continuous time; mainly the random walk, Brownian motion, and their properties. These in turn involve notions like the quadratic variation, the reflection principle, the Markov property and the martingale property. We will cover the stochastic Ito integral, the Ito formula, and their mathematical applications; for example, stochastic differential equations and some references to partial differential equations.

Quantitative Risk Management (M. Pakkanen)

- Risk management and financial returns: Taxonomy of risks, why manage financial risks, the regulatory framework, stylised facts of financial asset returns, a generic model of asset returns
- Basic concepts in risk management: Risk factors, conditional and unconditional loss distributions, Value-at-Risk, expected shortfall, coherent risk measures, historical simulation, Monte Carlo, backtesting
- Univariate time series and volatility modelling: Linear models, ARMA models, GARCH-type models, specification, estimation and forecasting, applications to equity and FX returns
- Volatility modelling with intraday data: Continuous-time models, realised variance construction, range-based volatility measures, intraday data issues, improving volatility forecasts and VaR models with realised measures
- Non-normal distributions and extreme value theory: The distribution of maxima, threshold exceedances, estimating the tail index, tails of specific models, applications to VaR and ES
- Multivariate models and dimension reduction techniques: multivariate normal distribution, testing for normality, normal mixture distributions, spherical and elliptical distributions, factor models, principal components, applications to the term structure of interest rates
- Multivariate time series and covariance modelling: Multivariate ARMA processes, multivariate GARCH-type models, specification, estimation and applications to equity portfolio VaR and Expected Shortfall
- Copulas and dependence: Basic properties, dependence measures, popular families of copulas, mixture copulas, conditional and time-varying copulas, specification, estimation and application to a trading book of CDS contracts

Statistical Methods in Finance (A. Jacquier)

The financial industry has changed dramatically over the past few years, and the new regulations imposed to banks require more statistical knowledge. The aim of this new core module is to reflect these changes, and to make students up to date with the current needs of the financial sector. This course is concerned with essential statistical methods for the analysis of financial data. Topics covered include regression methods (including ordinary and generalised least squares), time series analysis (including ARMA, ARCH, GARCH), Bayesian analysis, parametric estimation methods (including maximum likelihood estimation and classical asymptotic theory), and non-parametric estimation methods. The various methods are illustrated by applications in finance.

Computing in C++, Part I: Programming in C (R. Nürnberg)

This non-assessed module will give an introduction to the programming language C. No programming experience in C is required to follow this module. Attending this module will help students complete the practical assignments of other modules. It will be followed in the second term by an introduction to Object Oriented Programming in C++.

Spring Term

Computing in C++, Part II: Object oriented programming (R. Nürnberg)

The module gives an introduction to object oriented programming in C++. In contrast to structured programming, where a programming task is simply split into smaller parts, which are then coded separately, the essence of object oriented programming is to decompose a problem into related subgroups, where each subgroup is self-contained and contains its own instructions as well as the data that relates to it. Starting from the simple concept of a class that contains both data and methods relating to that data, the module will cover all the major features of object oriented programming, e.g. encapsulation, inheritance and polymorphism. To this end, the module will address operator overloading, virtual functions and templates.

Interest rate models with credit risk, collateral, funding liquidity risk, multiple curves (D. Brigo)

This is a module that deals with the theory and practice of the term structure of interest rates when including also credit risk, funding liquidity costs, collateral modelling and multiple curves. The paradigm of derivatives valuation is shifting from complex payouts designed on simple single asset class risks to simple products that are now managed by analysing previously neglected complex and interconnected nonlinear risks. The module starts by briefly putting derivatives valuation into context, in connection also with the onset of the 2007-2008 crisis that prompted many of the changes we are seeing now. The module then moves to classic interest rate models based on a risk free rate, on classical instantaneous forward rates, and on default free LIBOR and SWAP rates, also in presence of volatility smile. Several families of models are introduced and studied in detail, with an eye both to a rigorous theoretical derivation and to practical implementation and calibration. Following the classical part, the increasingly important issues of multiple discount curves, credit risk, credit and debit valuation adjustments, collateral modelling, gap risk and funding liquidity costs are analysed quantitatively. The related notions of CVA, DVA and FVA are analysed and criticised in detail, and their significance for the general derivatives valuation paradigm is discussed. The specific case of trading through central clearing (CCPs) is hinted at. Finally, an analysis of Risk measures for interest rate derivatives products is presented, with a case study highlighting the role of correlation and dependence in Risk measurement.

Simulation Methods for Finance (H. Zheng)

This module is an introduction to simulation methods in finance and more generally to probabilistic numerical methods for PDEs. It starts with discussion of random number generators, statistical tests and moves on to cover numerical schemes for solving Stochastic Differential Equations: the Euler, Milstein and certain higher-order schemes. Properties of weak and strong convergence, consistency and numerical stability are established. It then discusses variance reduction techniques and estimation of sensitivities. The module will be concluded by studying a numerical method for American Options and non-linear PDEs, if time permits.

Elective modules

Algorithmic Trading and Machine Learning (G. Di Graziano)

The aim of the module is to present a series of cutting-edge topics in the area of “Algorithmic trading” in a unified and systematic fashion. For each of the problems presented, we try to emphasise both the mathematical theory as well as industry applications. The module consists of two main parts: 1) Optimal Execution Problems and 2) Machine Learning in Finance. Optimal execution techniques are particularly relevant for market makers and quantitative brokers whereas machine learning is often used by hedge fund and prop desks to generate trading signals. However machine learning algorithms can be also applied as part of optimal execution tools, for example in order to choose order types or speed of execution. The basic optimal execution problem consists of an agent (e.g. a bank or a broker) who needs to buy or sell a pre-specified number of units of a given asset within a fixed time frame (e.g. an hour, a day, etc). Assuming that the purchase or sale of the asset will have an impact on its price, what is the execution policy which minimises market impact? Having decided on the execution schedule, what type of order (market or limit order) is better to submit? The first problem can be formulated as a

trade-off between the expected execution cost and the price risk due to exogenous factors. We shall solve the optimisation problem for different types of

- Price dynamics (ABM vs GBM, with or without drift);
- Market impact type (temporary, transient, permanent);
- Exogenous Risk functions (variance, Value at Risk).

Machine learning techniques are becoming increasingly popular in the financial industry. They are typically used to help predict asset price patterns, volatility regimes, etc. The module starts by formalising the concept of “learning” and providing an overview of various learning techniques. The subsequent lectures analyse in detail some of the most popular machine learning algorithms such as neural networks and support vector machines. We then introduce various smoothing tools (kernel regression, wavelets, HHTs) which have historically been developed for signal processing applications but have found their way into finance over the last few years. Those methods can be used as stand-alone or jointly with other learning algorithms, e.g. SVM. Finally, we shall analyse issues related to model selection and how to combine different models to improve the learning outcome. Trading applications using real market data will be presented during the module.

Numerical Methods for Finance (A. Jacquier)

In this module we will explore some of the main numerical tools anyone working in a quantitative field should know, namely finite difference methods for PDEs, numerical integration, optimisation methods and Fourier methods. We shall endeavour to strike a balance between the theoretical aspects of these tools and their practical implementations in mathematical finance.

Advanced Methods in Derivatives Pricing (A. Jacquier)

This module can be seen as the continuation of the two modules **Stochastic Processes** and **Mathematical Finance** taught in the Autumn Term. We shall revisit and go further in some of the concepts developed there, such as the Martingale Representation Theorem, Change of measure and Girsanov theorem, Quadratic variation of semimartingales, Feynman-Kac Theorem, Existence and uniqueness of SDEs. We shall in particular see these fundamental results in action, when studying the properties of the volatility surface: existence of the implied volatility and the local (Dupire) volatility for general semimartingales, existence and uniqueness of stochastic volatility models.

Convex Analysis and Optimization (P. Siorpaes)

- Convex sets: convexity-preserving operations, convex, conical and affine hulls, relative interior, projection on closed convex sets, polar sets and bipolar theorem, recession and barrier cones, normal and tangent cones, extreme points and Krein-Milman Theorem, Hahn-Banach separation theorem
- Convex functions: convexity-preserving operations, lower-semicontinuity, first and second order differentiability, characterizations, difference of convex functions, subdifferential and its properties, regularizations of a convex function, convex conjugate function (a.k.a. Fenchel-Legendre transform)
- Optimization: formulation of constrained convex optimization problems, Lagrangian function and multipliers, dual problem, optimality conditions, saddle points, Fenchel’s duality theorem
- Some applications (in simplified settings): fundamental theorem of asset pricing, optimal investment, Kantorovich duality in optimal transport

Stochastic Differential Equations

This is an advanced course on stochastic differential equations. It will build upon the theory of stochastic integration developed in the first term course Stochastic Processes (M5MF3). The following topics will be covered:

1. A review of Brownian motion, and stochastic integration with respect to continuous semimartingales. Applications will include Itô’s formula, the exponential martingale inequalities, Girsanov’s theorem, the Dubins-Schwartz characterisation of continuous local martingales, the martingale representation theorem, the Burkholder-Davis-Gundy inequalities, Stratonovich calculus and Tanaka’s formula.

2. Stochastic differential equations (SDEs). Itô processes and diffusions. Strong and weak solutions, existence and uniqueness and formulation using the martingale problem method. Kolmogorov's forward and backward equations, the Feynman-Kac formula.
3. One-dimensional SDEs and diffusion processes. The Yamada-Watanabe theorem. Examples and applications.

Data Analysis and Machine Learning (P. Bilokon)

This course is an introduction to data analysis and 'machine learning' techniques, a vast and hugely active area of research and applications. The emphasis will be on methodology and each technique will be illustrated by applications in finance. Implementation of key algorithms in R, Python or MATLAB will be discussed.

Placements and project

The College defines a placement as:




"work experience, assessed project work, a period of course-based study or a period of research (for which academic credit is awarded and/or where the student remains subject to College student regulations during the relevant period) and where there is a transfer of direct supervision of the student to a third party (i.e. where a member of staff at the third party acts as the day-to-day supervisor/manager) for a period of two weeks or more."

Academic departments are responsible for managing any study or work placement which forms part of your degree programme. It is expected that you will contribute to the process of planning your placement.

For guidance on this, see the College's Placement and Learning Policy and associated good practice:

 www.imperial.ac.uk/about/governance/academic-governance/academic-policy/placement-learning

Your Departmental Placement Coordinators:

-  Mrs Rula Murtada
-  Dr Antoine Jacquier
-  Dr Mikko Pakkanen

Overview

The project is a substantial component of the MSc in Mathematics and Finance, occupying up to four months of the MSc programme. It is a piece of original work undertaken by you under the direction of an academic project supervisor and in most cases also an external supervisor. Our intention is that most projects will be carried out in association with a bank, finance house, hedge fund, consultancy, or systems provider in the finance industry, and we endeavour to arrange suitable placements. The project may be an 'internship', where you work at the bank full time, or a collaborative arrangement where you work in the College and visit the company on a regular basis to discuss the project. In either case you will be assigned an academic project supervisor who will be a member of staff of the Mathematical Finance Section.

Arranging placements is a complex process where we are ultimately dependent on the goodwill of our industrial partners and on market conditions. Students must also bear in mind that they must pass companies' own assessment processes before being offered a placement. It cannot be guaranteed that everybody will get exactly what he or she wants, but every effort will be made to achieve reasonably satisfactory arrangements. If you have your own contacts in the industry, or specific ideas as to your

project topic, you should discuss these with your tutor at the earliest possible time, so that these can be taken into consideration.

We will be using software InPlace to manage the Placement administration and more guidance will be made available to you during the year. Below are some of the methods in which we allocate placements.

Company presentations

From October there will be a series of talks given by our industry partners. These events provide an opportunity for students to find out more about companies and also offers the chance to network with employees in an informal environment. You will be invited to apply to their internship programmes after attending the events.

CV Book

Early on in the course students are asked to provide us with their CVs. These are collated into a CV book which is distributed to our industry partners, who may get in touch with students directly with intern opportunities.

Student referral

The majority of project allocation takes place from January, once the first term assessments have been completed. Opportunities will be advertised on InPlace and students will be invited to express an interest in applying. The Programme team will shortlist students based on how well the specified criteria is met. Companies then select who they wish to invite for interview. Alongside our referrals, we also expect students to be proactive in applying for placements and finding their own opportunities. Only MSc students who have achieved an acceptable level of academic competence will be offered as candidates to an external sponsor.

Placement requirements

When you seek your own placement, the duration should be at least 10 weeks and the topic of project should be quantitative in nature. If your internship or job opportunity is not compatible with a suitable project, then you can instead work on an internal project with a member of academic staff at Imperial.

Project theses must be submitted to the MSc administrator by **16.00 on 11 September 2018**. The length of the thesis is normally 30-50 typed pages, and it must be typed in LaTeX following a provided template. Two spiral-bound copies are required, together with an electronic PDF copy.

For more information on placements visit the Placements website:

 www.imperial.ac.uk/placements

If you are considering/planning a placement outside the UK you should also refer to the Placement Abroad Handbook:

 www.imperial.ac.uk/placements/information-for-imperial-college-students

MSc Prizes

Two prizes are available for the best MSc thesis:

- NATIXIS Prize for best Master's Thesis in Quantitative Finance
- Palgrave Macmillan Award for Best MSc Thesis in Mathematics and Finance

Imperial Mobile app

Don't forget to download the free Imperial Mobile app for access to College information and services, including your programme timetable, College emails and a library catalogue search tool.

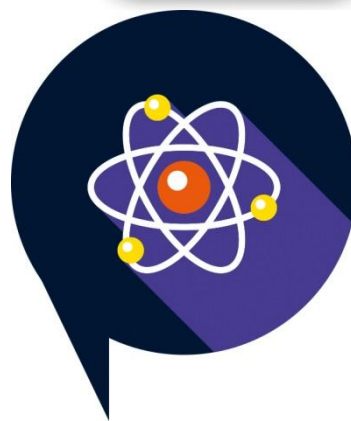
 www.imperial.ac.uk/imperialmobile



Imperial Success Guide

The Imperial Success Guide is an online resource with advice and tips on the transition to Master's level study. More than just a study guide, it is packed with advice created especially for Imperial Master's students, including information on support, health and well-being and ideas to help you make the most of London.

 www.imperial.ac.uk/success-guide



3. Assessment

Degree Classification

Pass

A student must:

- Achieve an aggregate mark of at least 50% in each module. A student may be condoned in modules up to the value of 15 ECTS with a qualifying mark of at least 40%.
- Achieve an aggregate mark of at least 50% for the programme.

Merit

A student must:

- Achieve an aggregate mark of at least 50% in each module. A student may be condoned in modules up to the value of 7.5 ECTS with a qualifying mark of at least 40%.
- Achieve an aggregate mark of at least 60% for the module 'Research Project'
- Achieve an aggregate mark of at least 60% for the programme.

Distinction

A student must:

- Achieve an aggregate mark of at least 50% in each module. A student may be condoned in modules up to the value of 7.5 ECTS with a qualifying mark of at least 40%.
- Achieve an aggregate mark of at least 70% for the module 'Research Project'
- Achieve an aggregate mark of at least 70% for the programme.

Notes:

Taking an extra elective – please read carefully

To meet the requirements of the degree, students must take three elective modules. Students are permitted to take an exam for an extra elective (so four electives in total) and the elective with the lowest mark will not be counted when deciding the final degree award. Before you decide to take an extra elective, please keep in mind the following:

- The extra module will be listed on your transcript, regardless of what grade you get. It will be marked as N/A whilst the modules that do count towards your degree will be marked as Pass/Fail.
- However, if you simply do not turn up to an exam and there are no mitigating circumstances to explain your absence, that module will be marked as a fail on your transcript, though it will not count towards the calculation of your final degree. There will be a “grace period” where you will be permitted to change your mind about which electives you want to take without penalty. If after the end of the grace period you decide to drop an elective or if you do not turn up to the exam without prior explanation, you will be regarded as having failed that module. The module will be marked as a 0 on your transcript and it will be marked as fail.
- The MSc in Maths and Finance is a difficult programme already, with students having to take 10 modules. Think carefully whether you will have the time to prepare for an extra module.
- A lot of preparation is required to organise the exams and if students continually change their minds this wastes a lot of time. If you are not sure which modules to take, seek advice from your lecturer, course adviser, the Programme Director or your peers.

Assessed coursework must be submitted by the announced deadline. See [Late Submission Section](#).

Thinking the unthinkable: If you do not achieve the above criteria, you cannot receive the MSc degree at the end of the academic year, but you have the option to retake examinations (and/or the project thesis) the following year, only once. You can only retake examinations you have failed, and—at the discretion of the lecturer—any coursework satisfactorily completed the first time may be carried forward. No fees, apart from an examination re-entry fee, are payable the next academic year (for more information see the website <http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/resitting-examinations/>). Marks for resit examinations are capped at the pass mark (50%).

Interruption of studies: It sometimes happens that a student's studies are interrupted for personal reasons (illness, etc.). Another thing that has occasionally happened in the past is that a student is hired by a company and obliged to start work before the completion of the MSc (e.g. to participate in the company's induction training programme). If something of this sort happens to you tell the MSc Administrator straight away. It is important, for anything more than a brief absence, to apply to the College for an "interruption of studies", which essentially "stops the clock" while you are away. This interruption cannot exceed two years.

Mitigating circumstances (e.g. illness) can affect your academic performance, examinations and projects; if you feel they should be taken into consideration, you should inform the MSc Administrator as soon as possible. Relevant forms are available in the Appendix; see also <http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/mitigating-circumstances/>

Award and classification: they will be decided mid- to late October 2018 by the examination board, which has the final authority in these matters. The board will also consider borderline cases, and take into account mitigating circumstances. The final results are released by Registry by mid-November. During the year you will receive indications of your results in the form of letter grades, which are provisional and still subject to confirmation by the examination board. The coding used is A+=85+, A=70-84, B=60-69, C=50-59, D=40-49, E=30-39, F=0-29. Academic and Examination regulations can be found at <http://www.imperial.ac.uk/about/governance/academic-governance/regulations/>

Marking criteria MSc thesis

A thesis in the distinction range (70-100) is a sustained, coherent contribution that:

- demonstrates broad understanding of the subject
- demonstrates a high level of independent and/or critical thinking
- demonstrates evidence of effective synthesis of ideas
- demonstrates thorough investigative research, high level problem-solving and creative performance
- demonstrates the ability to critically evaluate one's own research in the context of existing literature
- may demonstrate originality in topic, method, theoretical development, creative practice or findings and conclusions (this would be expected at A+ level)
- may include material of publishable quality (this would be expected at A+ level)
- is presented to a consistently high standard

More specifically, the following subdivision applies:

- 90-100: written to publishable standards – contains good original work, with a significant result, explained very well, with very good account of references to existing work. Presentation excellent.
- 80-89: written to almost publishable standard – containing good original work, with interesting well-explained results, with good account of the existing literature. Good presentation.
- 70-79: good original work, completing a new well-explained result, linked to existing literature.

Merit theses (60-69) are sound and compelling, and demonstrate evidence of critical thinking and an understanding of a significant body of knowledge. Work at this level also:

- provides a logical overall argument

- selects and applies suitable methods
- gathers original data (where applicable) and analyses it in a careful and coherent manner
- provides evidence which clearly supports its findings and arguments
- may in parts be more descriptive than evaluative or synthesised
- may not fully realise the possibilities of the research data/findings
- includes discussions / conclusions which show some appreciation of the significance of the findings
- may make fewer or weaker links to existing research, theoretical concepts or creative practice than would be expected in Distinction level work
- is presented to a generally high standard but may contain noticeable errors in referencing, punctuation, grammar and/or spelling

More specifically, the following subdivision applies:

- 65-69: some good original ideas, developed independently, but not far enough to complete a significant result; the work still explained well and with good account of and references to existing work. Close to Distinction but not quite there.
- 60-64: some good ideas, developed independently, but not far enough to reach a significant result; fair explanation of the work and with some account of and references to existing work.

A thesis in the pass range (50-59):

- demonstrates understanding and analytical ability at a level clearly beyond undergraduate level
- presents an overall argument, but may not be fully developed or consistent in its application
- outlines a research plan and applies appropriate methods
- demonstrates competence in the formulation, conduct and analysis of independent research
- is generally sound but may be uneven or limited in some respect
- may demonstrate limited evidence of synthesis and critical engagement with literature
- is likely to focus more on description than analysis of findings
- has appropriate, but limited, evidence in the support of its findings and arguments
- is competent in its presentation, but may have numerous, obvious errors of referencing, punctuation, spelling and/or grammar.

More specifically, the following subdivision applies:

- 55-59: an explanation of the problem and the work of others on it, but without much independent work of the candidate's own.
- 50-54: as above but in some way defective – for example one from: few references, some unclear text, poorly presented; however still showing some understanding.

A thesis in the D-E-F range (0-49) demonstrates serious deficiencies in one or more elements:

- may present research literature, theory or methods ineffectively, inaccurately or unreflectively
- may lack an overall argument
- lacks breadth and depth
- lacks cohesion across the thesis
- contains limited or inappropriate evidence
- interpretation may be minimal or flawed
- poor presentation poor with many errors of referencing, punctuation, spelling, grammar

Instruction to Candidates for Examinations

Students who are candidates for examinations are asked to note that all examinations are conducted in accordance with the College's Academic Regulations, the Regulations for Programmes of Study and the Examination Regulations.

Instructions for exam candidates can be found here:



<http://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/academic-policy/exam-arrangements-and-re-sits/Instructions-to-candidates-for-examinations.pdf>

Academic Integrity and Academic Misconduct

As your programme of study continues, you will be taught the concept of academic integrity and how you can ensure that any work that you complete now, or in the future, conforms to these principles. This means that your work acknowledges the ideas and results of others, that it is conducted in an ethical way and that it is free from plagiarism.

Academic misconduct is the attempt to gain an academic advantage, whether intentionally or unintentionally, in any piece of assessment submitted to the College. This includes plagiarism, self-plagiarism, collusion, exam offences (cheating) or dishonest practice. Full details of the policy can be found at:



www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/plagiarism-academic-integrity--exam-offences/

Definitions of the main forms of academic misconduct can be found below:

Plagiarism

Plagiarism is the presentation of another person's thoughts, words, images or diagrams as though they were your own. Another form of plagiarism is self-plagiarism, which involves using your own prior work without acknowledging its reuse.

Plagiarism must be avoided, with particular care on coursework, essays, reports and projects written in your own time and also in open and closed book written examinations.

Where plagiarism is detected in group work, members of that group may be deemed to have collective responsibility for the integrity of work submitted by that group and may be liable for any penalty imposed, proportionate to their contribution.

Collusion:

This is the term used for work that has been conducted by more than one individual, in contravention of the assessment brief. Where it is alleged that there has been collusion, all parties will be investigated under the Academic Misconduct procedure.

Exam offences

Exam offences include behaviour such as bringing authorised material into an exam, attempting to communicate with others apart from the invigilator, trying to remove examination material without permission, taking an exam for someone else or getting someone else to take an exam for you.

Dishonest practice


Examples of dishonest practice include bribery, contact cheating (buying work from an essay mill or other individual to submit as your own), attempting to access exam papers before the exam, making a false claim for mitigating circumstances or providing fraudulent evidence, falsifying documentation or signatures in relation to assessment.

4. Board of Examiners

Board of Examiners

This includes the Programme Directors, all faculty involved in lecturing an MSc course or supervising an MSc project in the [Mathematical Finance Section](#)


External Examiners

 Prof. Kostas Kardaras, London School of Economics.

It is common for Master's level students to have some form of academic or social interaction with their external examiners at some point during or after their studies as well as during the assessment process itself.

It is inappropriate for you to submit complaints or representations direct to external examiners or to seek to influence your external examiners. Inappropriate communication towards an examiner would make you liable for disciplinary action.

A summary of External examiners reports from the previous academic year can be found here:

 www.imperial.ac.uk/staff/tools-and-reference/quality-assurance-enhancement/external-examining/information-for-staff

5. Location and Facilities

Imperial has a number of campuses in London and the South East. All have excellent travel links and are easily accessible via public transport.

Your main location of study will be:

 Huxley Building

180 Queen's Gate

London - SW7 2AZ

This is based on the South Kensington Campus

Facilities

Level 2

MSc Student computer room - 215

Level 4

Mathematics Learning Centre – 416 contains 64 computers, two study desks fitted out with audio-visual facilities for project presentations, two printers and a range of additional study areas.

Level 6

MSc Administrator Office – 652 open Monday-Friday 9:00-17:00

The printing room is located opposite the lifts

Lockers

There is a (limited) number of lockers on Level 1 of the Huxley building.

 www.imperial.ac.uk/estates-facilities/travel/shuttle-bus

Maps

Campus maps and travel directions are available at:

 www.imperial.ac.uk/visit/campuses

Accessibility

Information about the accessibility of our South Kensington Campus is available online through the DisabledGo access guides:

 www.disabledgo.com/organisations/imperial-college-london-2

Smoke-Free Policy

All Imperial campuses and properties are smoke-free. This means that smoking by staff and students is not permitted on or within 20 metres of College land. The policy covers all College properties, including student accommodation and sports grounds.

 www.imperial.ac.uk/smoke-free

6. Working While Studying

If you are studying full time, the College recommends that you do not work part-time during term time. If this is unavoidable we advise you to work no more than 10–15 hours per week, which should be principally at weekends and not within normal College working hours.

Working in excess of these hours could impact adversely on your studies or health.

If you are here on a Tier 4 visa you can work no more than 20 hours a week during term time. Some sponsors may not permit you to take up work outside your studies and others may specify a limit.

If you are considering part-time work during term time you are strongly advised to discuss this issue with your supervisor or Personal/Senior Personal Postgraduate Tutor. If you are on a Tier 4 visa you should also seek advice from the International Student Support team regarding visa limitations on employment.

The College's examination boards will not normally consider as mitigating circumstances any negative impact that part-time work during term-time may have had on your performance in examinations or in other assessed work. Examinations or vivas cannot be rescheduled to accommodate your part-time working arrangements.

7. Health and Safety


You are responsible for looking after your own health and safety and that of others affected by your College-related work and leisure activities. You must:


- comply with all local and College policies, procedures and codes of practice and with the arrangements which the College has in place to control health and safety risks.
- ensure that your activities do not present unnecessary or uncontrolled risks to yourself or to others.
- attend appropriate induction and training.
- report any accidents, unsafe circumstances or work-related ill health of which you become aware to the appropriate person.
- not interfere with any equipment provided for Health and Safety.
- inform your supervisor or the person in charge of the activity in cases where you are not confident that you are competent to carry out a work or leisure activity safely, rather than compromise your own safety or the safety of others.


The College's Health and Safety Statement can be found at:

 <http://www.imperial.ac.uk/safety/safety-by-topic/safety-management/health-and-safety-policy-statement/>

Your Departmental safety contact is:

 Andy Pope

 131 Huxley

 020 7594 8544

 a.pope@imperial.ac.uk

The College Safety Department

The Safety Department offers a range of specialist advice on all aspects of safety. This includes anything which you feel might affect you directly, or which may be associated with teaching, research or support service activities.

The College's activities range from the use of hazardous materials (biological, chemical and radiological substances) to field work, heavy or awkward lifting, driving, and working alone or late.

All College activities are covered by general health and safety regulations, but higher risk activities will have additional requirements.

The Safety Department helps departments and individuals ensure effective safety management systems are in place throughout the College to comply with specific legal requirements.

Sometimes the management systems fail, and an accident or a near-miss incident arises; it is important that we learn lessons from such situations to prevent recurrence and the Safety Department can support such investigations. All accidents and incidents should be reported online at:

 www.imperial.ac.uk/safety

To report concerns or to ask for advice you should contact your programme director, academic supervisor or departmental safety officer in the first instance. You may also contact the Safety Department directly.

Occupational Health requirements

The College Occupational Health Service provides services to:

- protect health at work
- assess and advise on fitness for work
- ensure that health issues are effectively managed

The Service promotes and supports a culture where the physical and psychological health of staff, students and others involved in the College is respected, protected and improved whilst at work.

 www.imperial.ac.uk/occupational-health

8. College Policies and Procedures

Regulations for Students


All registered students of the College are subject to the Regulations for Students, the College Academic and Examination Regulations and such other regulations that the College may approve from time to time.

 www.imperial.ac.uk/about/governance/academic-governance/regulations

 www.imperial.ac.uk/students/terms-and-conditions


Academic Feedback Policy

We are committed in providing you with timely and appropriate feedback on your academic progress and achievement, enabling you to reflect on your academic progress. During your study you will receive different methods of feedback according to assessment type, discipline, level of study and your individual need. Further guidance on the Policy of Academic Feedback can be found on the Academic Governance website:

 <http://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/academic-policy/academic-feedback/Academic-feedback-policy-for-taught-programmes.pdf>

Provisional Marks Guidance

Provisional marks are agreed marks that have yet to be ratified by the Board of Examiners. These results are provisional and are subject to change by the Board of Examiners. The release of provisional marks is permitted except in certain circumstances. Further information can be found in the Guidelines for Issuing Provisional Marks to Students on Taught Programmes:

 <http://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/academic-policy/mark-and-moderation/Guidelines-for-issuing-provisional-marks-to-students-on-taught-programmes.pdf>


Late Submission Policy

You are responsible for ensuring that you submit your coursework assessments on time and by the published deadline. Any piece of assessed work which is submitted beyond the published deadline (date and time) would be classed as a late submission. Further guidance on Late Submission of Assessments can be found on the Academic Governance website:

 <https://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/academic-policy/mark-and-moderation/Late-submission-Policy.pdf>

Academic Misconduct Policy and Procedures

It is important that you learn how to properly attribute and acknowledge the work, data and ideas of others. Plagiarism is scientific misconduct, and students whose assessments can be shown to contain plagiarism are subject to penalties as outlined in the College's Misconduct Policy and Procedures.

 www.imperial.ac.uk/about/governance/academic-governance/academic-policy/complaints-appeals-and-discipline

Appeal and Complaints Procedures

We have rigorous regulations in place to ensure assessments are conducted with fairness and consistency. In the event that you believe that you have grounds for complaint about academic or administrative services, or wish to appeal the outcome of an assessment or final degree, we have laid out clear and consistent procedures through which complaints and appeals can be investigated and considered:



www.imperial.ac.uk/about/governance/academic-governance/academic-policy/complaints-appeals-and-discipline

Student Disciplinary Procedure

The College has the right to investigate any allegation of misconduct against a student and may take disciplinary action where it decides, on the balance of probabilities, that a breach of discipline has been committed. The general principles of the Student Disciplinary Procedure are available on the College website:



www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/ordinances/students/

Intellectual Property Rights Policy

For further guidance on the College's Intellectual Property Rights Policy is available on the College website:



www.imperial.ac.uk/students/enterprising-students/intellectual-property/

Use of IT Facilities

View the Conditions of Use of IT Facilities:



<http://www.imperial.ac.uk/admin-services/ict/self-service/computers-printing/staff-computers/conditions-of-use-for-it-facilities/>

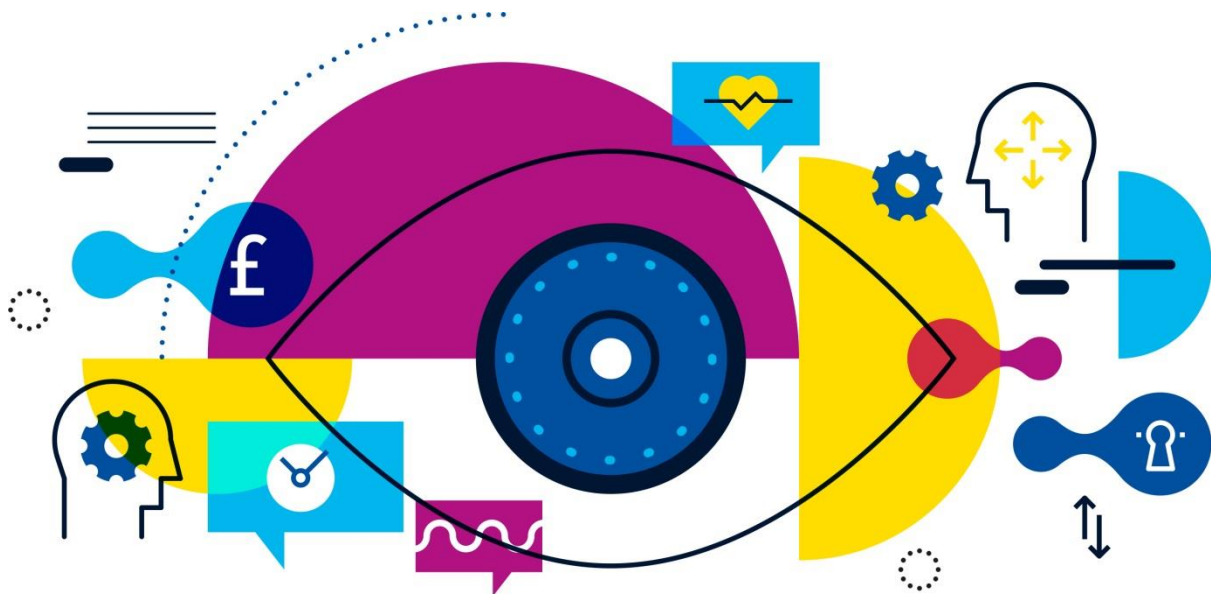
9. Well-being and Advice

Student Space

The Student Space website is the central point for information on health and well-being.



www.imperial.ac.uk/student-space



Departmental support and College tutors

Your Department has a system of academic and pastoral care in place to make sure you have access to the appropriate support throughout your time here. This includes:

Personal Postgraduate Tutor

The Department's Personal Postgraduate Tutor can offer pastoral support and advice. You can arrange to have a meeting with them at any time during your studies – what you discuss will be completely confidential.

If necessary they will direct you to an appropriate source of support.

Mathematics Department PG Welfare Officer

Dr Tony Bellotti

522 Huxley

pgr.welfare@imperial.ac.uk

Advice services

The tutor system is complemented by a College-wide network of advice and support. This includes a number of specialist services.

Careers Service

The Careers Service has strong links to your Department and you will have a named Careers Consultant and Placement and Internship Adviser who will run both group sessions and individual meetings within your Department. You can arrange to meet with your linked Careers Consultant or Placement and Internship Adviser either in your Department or centrally at the South Kensington Campus on Level 5, Sheffield Building where the Careers Service is based.

Visit the Career Service's website to:

- Book a careers appointment
- Find resources and advice on successful career planning



www.imperial.ac.uk/careers


Counselling and Mental Health

The Student Counselling and Mental Health Advice Service offers short-term counselling to all registered students. The service is free and confidential. Counsellors are available at the South Kensington, Hammersmith and Silwood Park Campuses.

 www.imperial.ac.uk/counselling

Financial support and tuition fees

If you've got any questions about student financial support (loans, scholarships and research council studentships, US and Canadian loans) then contact the Student Financial Support team:


 020 7594 9014

 student.funding@imperial.ac.uk

If you suddenly find yourself in financial difficulties or experience an unexpected change in circumstances, you may be eligible to apply for emergency financial help through the Student Support Fund. The Fund offers a one-off payment of up to £2,000 to cover such emergencies as last minute accommodation and travel necessities, equipment and childcare. It does not have to be repaid.

 <http://www.imperial.ac.uk/students/fees-and-funding/financial-assistance/student-support-fund/>

For tuition fees queries, contact the Tuition Fees team:

 020 7594 8011

 tuition.fees@imperial.ac.uk

Imperial College Union (ICU) Advice Centre

Imperial College Union runs the Advice Centre independently of the College with advisers on hand to provide free, confidential, independent advice on a wide range of welfare issues including housing, money and debt, employment and consumer rights, and personal safety.


 www.imperialcollegeunion.org/advice

Student Hub

The Student Hub represents a single point of contact for all key administrative information and support. The Student Hub team can help you with enquiries about:

- Accommodation (including checking contracts for private accommodation)
- Admissions
- International student enquiries
- Research degrees
- Student financial support
- Student records
- Tuition fees

 Level 3, Sheffield Building, South Kensington Campus

 020 7594 9444

 student.hub@imperial.ac.uk

 www.imperial.ac.uk/student-hub

Health Services

NHS Health Centre and finding a doctor

Even if you're fit and healthy we recommend that you register with a local doctor (GP) as soon as you arrive in London. For help finding your nearest GP see the Student Space website:

 www.imperial.ac.uk/student-space/here-for-you/find-a-doctor

There is the Imperial College Health Centre on our South Kensington Campus which you may visit during clinic hours if you're feeling unwell. Students living within the practice catchment area are encouraged to register with the Centre.

 www.imperialcollegehealthcentre.co.uk

NHS Dentist (based in the Imperial College Health Centre)

Imperial College Dental Centre offers a full range of NHS and private treatment options.

 www.imperial.ac.uk/student-space/here-for-you/dentist


Disability Support

Disability Advisory Service

The Disability Advisory Service provides confidential advice and support for all disabled students and students with specific learning difficulties.

If you think you may have dyslexia or another specific learning difficulty but have never been formally assessed, the Disability Advisory Service offers initial screening appointments.

 Room 566, Level 5, Sherfield Building, South Kensington Campus

 020 7594 9755

 disabilities@imperial.ac.uk

 www.imperial.ac.uk/disability-advisory-service

Departmental Disability Officers

Departmental Disability Officers are the first point of contact within your department. They can apply for additional exam arrangements on your behalf, and will facilitate support within your Department.

Mathematics Department Disability Officer

Dr Tony Bellotti

522 Huxley

pgr.welfare@imperial.ac.uk

More information on Departmental Disability Officers is available at:

 www.imperial.ac.uk/disability-advisory-service/support/ddos


More information on procedures for the consideration of additional exam arrangements in respect of disability is available at:

 www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/academic-policy/exam-arrangements-and-re-sits/Exam-arrangements-in-respect-of-disability.pdf

Library and IT

Information and Communications Technologies (ICT)

If you're having problems with technology (including computers, laptops and mobile devices), you can get help from ICT's Service Desk.

 020 7594 9000

 www.imperial.ac.uk/ict/service-desk

Software shop

The Software shop offers a variety of general and subject specific software programs and packages for free or at a discounted price for Imperial students.

 www.imperial.ac.uk/admin-services/ict/shop/software

Library services

The Central Library at South Kensington is open around the clock pretty much all year. Make sure you find out who your departmental librarian is as they'll be able to help you find resources for your subject area. Also, don't forget to check out the Library's range of training workshops and our other campus libraries for access to specialist medicine and life sciences resources. Alongside these physical spaces and resources, the Library provides over 170,000 electronic books, journals and databases available both on and off campus and a free document delivery service to help you source books and articles from around the UK and the rest of the world:

 www.imperial.ac.uk/library

Religious support

The Chaplaincy Multi-faith Centre has chaplains from many different religions, as well as prayer rooms and information on places of worship. In addition, it runs meditation classes and mindfulness workshops for stress management. There is a student-run Islamic prayer room on campus and separate areas available for male and female Muslims.

 www.imperial.ac.uk/chaplaincy

Support for International Students

English language support

The Centre for Academic English provides free in-sessional English courses for international students while they are studying. These include classes and workshops on academic language, social language, the four skills of reading, writing, listening and speaking, 1-1 consultations with a tutor to work on a piece of academic writing or an oral presentation, self-study resources in the VLE Blackboard, and the Conversation Project, which partners students with a native-speaker volunteer to practise social and conversational English.

 www.imperial.ac.uk/academic-english

International Student Support team

Students from outside the UK make up around half of our student population, so our International Student Support team offers year-round support to help our international students settle into Imperial life. This includes UK visa and immigration advice and trips to different places of interest.

 www.imperial.ac.uk/study/international-students


10. Student Records and Data

The Student Records and Data Team are responsible for the administration and maintenance of the student records for all students studying at the College. This includes enrolments, programme transfers, interruption of studies, withdrawals and processing of examination entry for research degree students. The team also use this information to fulfil reporting duties to the Student Loans Company, Transport for London and the UKVI, as well as other external bodies.

The Team is responsible for the processing of student results and awards on the student record system as well as the production and distribution of academic transcripts and certificates of award.


The Student Records and Data Team produce a variety of standard document requests for both current and previous students including council tax letters, standard statements of attendance and confirmation of degree letters.

Student records and examinations

 +44 (0)20 7594 7268

 records@imperial.ac.uk

Degree certificates

 +44 (0)20 7594 8037

 certificates@imperial.ac.uk

11. Work-life Balance

The pace and intensity of postgraduate study at Imperial can be demanding so it's important to find time for outside interests.

Imperial College Union

The Union's range of 380+ student-led clubs, societies and projects is one of the largest of any UK university, opening up lots of ways for you to enjoy your downtime.

 www.imperialcollegeunion.org/about-us

Graduate Students' Union

The Graduate Students' Union is the postgraduate arm of Imperial College Union. The GSU works alongside the Imperial College Union President to ensure that the requirements of postgraduate students are catered for. It also organises a number of academic and social events during the year.

Physical Activity Sport

Imperial College has a wide range of sports and activities on offer that cater for all standards and abilities. We have a recreational activity offer, competitive sports teams and an elite sport programme. We are dedicated to ensuring we have a diverse, inclusive and exciting offer for all.

With an annual fee of £30 you will get use of the gym and swimming facilities on our campuses.

 www.imperial.ac.uk/sport

12. Student feedback and representation

Feedback from Students

The College and Union is committed to continually improving your education and wider experience and a key part of this is your feedback. Feedback is thoroughly discussed by your student representatives and staff.

Student Representation

Student Representatives are recruited from every department to gather feedback from students to discuss with staff. More information about the role, and instructions on how to become an academic representative, are available on the Imperial College Union (ICU) website.

 www.imperialcollegeunion.org/your-union/your-representatives/academic-representatives/overview

Staff-Student Committee

Staff-Student Committees are designed to strengthen understanding and improve the flow of communication between staff and students and, through open dialogue, promote high standards of education and training, in a co-operative and constructive atmosphere. College good practice guidelines for staff-student committees are available here:

 www.imperial.ac.uk/about/governance/academic-governance/academic-policy/student-feedback

13. Student Surveys

Your feedback is important to your department, the College and Imperial College Union.

Whilst there are a variety of ways to give your feedback on your Imperial experience, the following College-wide surveys give you regular opportunities to make your voice heard:

- PG SOLE lecturer/module Survey or departmental equivalent
- Student Experience Survey (SES)

The PG SOLE lecturer/module survey or equivalent runs at the end of the autumn and spring term(s). This survey is your chance to tell us about the modules you have attended and the lecturers who taught them.

For PG SOLE your lecturers will receive their individual numerical results and comments shortly after the survey closes. To make the most of your opportunity to give your feedback, please do not use offensive language or make personal, discriminatory or abusive remarks as these may cause offence and may be removed from the results. Whilst this survey is anonymous, please avoid self-identification by referring to personal or other identifying information in your free text comments.

The Student Experience Survey (SES) is another opportunity to leave your views on your experience. This survey will cover your induction, welfare, pastoral and support services experience.

The Postgraduate Taught Experience Survey (PTES) is the only national survey of Master's level (MSc, MRes, MBA and MPH) students we take part in. This is the only way for us to compare how we are doing against the national average and to make changes that will improve our Master's students' experience in future. PTES covers topics such as motivations for taking the programme, depth of learning, organisation, dissertation and professional development. PTES last ran in spring term 2018 and will next run in Spring 2020.

All these surveys are anonymous and the more students that take part the more representative the results so please take a few minutes to give your views.

Student feedback plays a crucial role in the way we shape the MSc course.

The Union's "You Said, We Did" campaign shows you some of the changes made as a result of survey feedback:

 www.imperialcollegeunion.org/you-said-we-did

If you would like to know more about any of these surveys or see the results from previous surveys, please visit:

 www.imperial.ac.uk/students/academic-support/student-surveys/pg-student-surveys

For further information on surveys, please contact the Registry's Surveys Team at:

 surveys.registrysupport@imperial.ac.uk

14. And finally

Alumni Services

When you graduate you will be part of a lifelong community of over 190,000 alumni, with access to a range of alumni benefits including:

- discounts on further study at the College and at Imperial College Business School
- alumni email service
- networking events
- access to the Library and online resources
- access to the full range of careers support offered to current students for up to three years after you graduate
- access to our Alumni Visitor Centre at the South Kensington Campus, with free Wi-Fi, complimentary drinks, newspapers and magazines, and daytime left luggage facility

Visit the Alumni website to find out more about your new community, including case studies of other alumni and a directory of local alumni groups in countries across the world.

 www.imperial.ac.uk/alumni

Opportunities for Further Study

After you have completed the MSc in Mathematics & Finance, you may choose to pursue options in a variety of areas. Previous graduates have often gone on to pursue PhD degrees in related fields, as well as to work in the private sector, including industry, consulting, and the financial services.