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Please note that information in the Handbook is subject to change; major changes will be communicated to students by email / year group meetings/ on Blackboard Maths Central
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 very much a part of this 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 help you reach your true potential.

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.

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 340 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 (for an annual fee of £30 in 2019-20) across our campuses.
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,

First and foremost, congratulations on making it here. It’s difficult to overstate how well you’ve done to make it to Imperial, and an easy thing to take for granted: well done.

Studying at a place like this gives you opportunities you simply wouldn’t have elsewhere. This is a well-funded institution, with extremely capable students and superb research facilities. Take advantage of both: working with others, and seeking out opportunities beyond your course, is what makes a degree here worthwhile.

Imperial has plenty to offer outside study too, giving you the chance to try something new. London is a well-connected, diverse city, where almost anything you could want is only a tube ride away. We’re a stone’s throw from some of the greatest museums in the world. We also have hundreds of student-led societies covering almost any area you can think of.

These societies are administered by your student union, the Imperial College Union. We also support networks of departmental student representatives, campaigns, and volunteering opportunities. The Union is led by students, for students. The four deputy presidents and myself are all elected students who have taken a year out to work full-time representing you.

University is a bit of a sea change: you’re in a place where, likely for the first time in your education, you have a good degree of control over how you learn. Take advantage of this. Consider running in our autumn elections, be sure to join a society or two, and above all, make your voice heard. If there’s something you want to see changed, this is a place where we can make that happen.

No matter what problems you have or opportunities you’re looking for, we’re here to help. Our office is on Level 2 in Beit Quadrangle, and you can check out our website for more information.

Best of luck - I hope you have a fantastic year,

Abhijay Sood

*Imperial College Union President 2019-20*

✉️ union.president@imperial.ac.uk

💻 imperialcollegeunion.org
1. Introduction to the Department

Welcome to the Department of Mathematics at Imperial College London!

The Department has a very strong reputation, both nationally and internationally, for the high quality of its degrees and Research. You are now part of that process – on a daily basis you will be interacting with researchers in the forefront of a wide range of mathematical disciplines, as well as with other good mathematicians of your age. To maintain the standard of the programme it is necessary to set high standards for you to achieve.

The programme is challenging and adjustment from school to university mathematics is not easy. Although many of the topics you meet in the First Year may be familiar, do not fall into the trap of thinking “I already know this” and so failing to take on board new ideas. You need to develop a deeper insight into even the simplest concepts and should acquire a feel for rigorous mathematical argument. We will also require you to be able to perform basic mathematical tasks quickly and clearly, without formula sheets or calculators. Try to avoid leaving gaps in your knowledge – the Second and Third Year material requires a firm foundation. If, for example, you decide “I can pass the First Year without understanding much about complex numbers”, you will find some of the later modules very difficult indeed. In order to progress from one year to the next, it is necessary to pass all core modules.

This handbook contains much information and advice about the various mathematics courses. It is specific to your year of entry and you should refer to it during your years here. Most of what is contains can be found on Maths Central pages of Blackboard (Blackboard Learn is the College’s VLE). More details about the Second, Third and Fourth Years will be available in the individual year guides. These may involve some changes, but the big picture should remain as described here.

Above all, you should enjoy mathematics, both doing it yourself and learning about it from others. If you never come away from a lecture, problem class or tutorial thinking “wow, that’s a really cool result” or “that makes perfect sense – it all fits together beautifully” you will be missing out on a large part of the experience. We hope and trust you have a successful and rewarding time here.

A Rigorous Mathematical Argument

You’re not being rational. Oh get real.

Professor David Evans   Director of Undergraduate Studies   September 2019
Academic and administrative staff

Contact details for Department of Mathematics staff members can be viewed on the Blackboard Learn (the College’s VLE) page ‘Maths Central’ in the General Information section, under Contacts (https://bb.imperial.ac.uk).

or online at:

http://www.imperial.ac.uk/natural-sciences/departments/mathematics/about-us/people/

Staff research interests can be viewed online at:

http://www.imperial.ac.uk/natural-sciences/departments/mathematics/research/

- **Professor David van Dyk**
  - 644 Huxley Building
  - 020 7594 8554
  - math.hod@imperial.ac.uk

- **Professor David Evans**
  - 661 Huxley Building
  - 020 7594 9257
  - david.evans@imperial.ac.uk

- **Dr Chris Ford**
  - 657 Huxley Building
  - 020 7594 9165
  - ma.st@imperial.ac.uk

- **Mrs Inkeri Hibbins**
  - 632 Huxley Building
  - 020 7594 0800
  - i.hibbins@imperial.ac.uk

- **Ms Sai Yoghananthan**
  - 654 Huxley Building
  - s.yoghananthan@imperial.ac.uk

- **Dr Davoud Cheraghi**
  - 654 Huxley Building
  - ma.yrentry19@imperial.ac.uk
Undergraduate Office – Huxley Building, Room 649

Ms Helen Haines  
Education Office Manager  
649 Huxley Building  
020 7594 9768  
h.haines@imperial.ac.uk

Mrs Donna Pile-Grant  
Undergraduate Teaching Administrator  
649 Huxley Building  
020 7594 8099  
d.pile-grant@imperial.ac.uk

Miss Valerie Nicol  
Undergraduate Office Administrative Assistant  
649 Huxley Building  
+44 (0)207 594 2047  
v.nicol@imperial.ac.uk

Ms Milda Batutiene  
Departmental Data Officer  
649 Huxley Building  
+44 (0) 20 7594 8505  
m.batutiene@imperial.ac.uk

Miss Gertrud Levit  
Admissions and Examinations Administrator  
647 Huxley Building  
+44 (0) 20 7594 8484  
g.levit@imperial.ac.uk

Maths Central & Departmental Notifications

All current programme information is available for students on the [Maths Central](#) page of Blackboard.

If any information is missing, students should contact Helen Haines.

Important Year and programme announcements will be sent by email to students’ Imperial email addresses. **Please check this email account daily.**

Notices may also be posted on the Departmental noticeboards around the building as well as on Blackboard on Maths Central or individual module pages.
Attendance and absence

You must inform your Year Tutor if you are absent from the College for more than three days during term and request permission from the Undergraduate Senior Tutor for absences longer than five days. 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 the Undergraduate Senior 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.

Departmental information:

It is a College regulation that students are required to attend to the satisfaction of the Head of Department. Missed attendances will be recorded in the student’s file.

Students must not miss compulsory meetings or events without prior permission to do so.

You should inform the Year Tutor or Undergraduate Senior Tutor in advance if you are going to miss an assessed work deadline or test. Please email academic members of staff directly if you cannot make an appointment.

If you miss a certain number of appointments/compulsory Year or Tutor meetings, you will be called in for a meeting by the Year Tutor/Undergraduate Senior Tutor. Should your attendance not improve, you may be asked to withdraw from the College.

Attendance in 2019-2020 is recorded at: start of Year Meetings, Personal Tutor Meetings, tests and coursework hand-ins, examinations and project supervisory meetings/presentations.
Key dates 2019–20

Term dates
Autumn term: 28 September 2019 - 13 December 2019
Year 1 Induction: 30 September 2019, 9.30am, Clore (continuing throughout weeks 1-2)
Meet Your Personal Tutor Week: 14-18 October & 18-22 November 2019

Spring term: 4 January 2020 - 20 March 2020
Meet Your Personal Tutor Week: 20-24 January & 24-28 February

Summer term: 25 April 2020 - 26 June 2020
Meet Your Personal Tutor Week: 8-12 June 2020
Year 1 Examinations: May 2020 (exact dates to be confirmed in 2020)
Year 1 Project Dates: 20 May – 17 June 2020
Board of Examiners 26 June 2020

Closure dates
Christmas/New year: 23 December 2020 – 1 January 2020
(College reopens on 2 January 2020)

Easter Holiday: 9 April 2020 – 14 April 2020
(College reopens on 15 April 2020)

Early May Bank Holiday: 8 May 2020
Spring Bank Holiday: 25 May 2020
Summer Bank Holiday: 31 August 2020

Key events
Great Exhibition Road Festival: 3 -5 July 2020
2. Programme information

The Department of Mathematics

The principal aims of the Department of Mathematics are to train professional mathematicians, to pursue the study of scientific and technological problems by mathematical methods and to provide mathematical skills that will be useful to those who wish to take up scientific and other jobs or to undertake research in the various branches of the subject. The Department is large, with over 650 undergraduates, over 350 postgraduates and over 70 academic staff. The range of modules available is both wide and deep.

The Department is in the Faculty of Natural Sciences in the College. We have a large degree of autonomy, but are also governed by College regulations.

We are also guided by College Principles and expect our students to work with us and develop a maturity of outlook, including responsibility for and control of their own learning.

Further information about College Principles and Imperial Graduate Attributes can be found online at:

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

The Purpose, Objectives and Relevance of the Undergraduate Degree Programme

What is mathematics?

The general perception is that ‘mathematics is using numbers’. This is imprecise and incomplete. A better description might be that ‘mathematics is the science of patterns’ although other important features are abstraction (looking at basic ideas and constructs) and precision of calculation and of argument.

The degree programmes within the Department of Mathematics have been structured in order to make the study of mathematics an enriching and enjoyable experience. The First Year is the same across all programmes. The Second Year contains a mixture of core and elective modules, and the lecture modules in the Third and Fourth are all electives. This allows you to acquire a solid knowledge of a broad range of topics in Mathematics and gives you the flexibility to specialise according to your interests. In classifying your degree, marks from later years are weighted more highly than marks from your first year.

Learning needs to be ‘active’ rather than ‘passive’. Mathematics is not a spectator sport. The very lifeblood of mathematics is contained in doing problems and trying to prove results. This often involves trying to break down a difficult task into a sequence of more straightforward ones and some degree of experimentation with different approaches. Learning should be ‘deep’, involving strong understanding of the structure and interrelationship of knowledge, rather than ‘shallow’, where the emphasis is on pure memory work.
Learning Outcomes

The intended learning outcomes of the undergraduate degree programmes can be found in the individual programme specifications (http://www.imperial.ac.uk/staff/tools-and-reference/quality-assurance-enhancement/programme-information/programme specifications/). For example, for the G100 BSc in Mathematics, these are that on successful completion of the programme you should be able to:

- demonstrate an understanding of core material and more specialised areas by assimilating and applying a large body of complex, inter-related concepts;
- use logical mathematical argument and deductive reasoning, together with formal processes of mathematical proof and development of mathematical theories;
- take a structured mathematical-analytical approach to problem solving, recognising the importance of assumptions made and consequences of their violation;
- apply Mathematics as a language to describe and model a wide range of situations relevant to research or industry, choosing appropriate solution methods and interpreting results;
- solve open-ended problems and problems with well-defined solutions by formulating problems in precise terms, identify key issues and try different approaches in order to make progress;
- develop programming skills and practices to further mathematical understanding and solve mathematical problems;
- communicate mathematical understanding concisely and appropriately in varied situations and to diverse audiences;
- manage and evaluate your learning, making appropriate choices for your self-development and use appropriate support and resources;
- work and plan effectively, both individually and as part of a team, making use of appropriate investigative methods.

The intended learning outcomes for intermediate years and for the MSci are detailed in the programme specifications:

The College has extensive Qualitative Assurance procedures concerning the content, delivery and assessment of programmes. Programme Specifications for the BSc/MSci degree programmes detailed here have been constructed in accord with the Quality Assurance Agency Subject Benchmarking for Mathematics, Statistics and Operational Research.

Further information about quality assurance can be viewed online at:
https://www.imperial.ac.uk/about/governance/academic-governance/senate-subcommittees/
European Credit Transfer System (ECTS)

As part of the compliance with the European ‘Bologna Process’, Department of Mathematics courses and degrees are required to be rated via the European Credit Transfer System (ECTS) – which is based notionally on hour counts for elements in the degree.

Further information about the ‘Bologna Process’ and ECTS can be viewed online at: [http://www.imperial.ac.uk/study/ug/courses/our-degrees/ects/](http://www.imperial.ac.uk/study/ug/courses/our-degrees/ects/)

Department of Mathematics ECTS ratings can be viewed within the Programme Specifications online at: [http://www.imperial.ac.uk/staff/tools-and-reference/quality-assurance-enhancement/programme-information/programme-specifications/](http://www.imperial.ac.uk/staff/tools-and-reference/quality-assurance-enhancement/programme-information/programme-specifications/).

Undergraduate Degree Programmes

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<thead>
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<th>MSc 4 Year</th>
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<td>-</td>
</tr>
<tr>
<td>Mathematics (Pure Mathematics)</td>
<td>G125</td>
<td>-</td>
</tr>
<tr>
<td>Mathematics with Applied Mathematics/Mathematical Physics</td>
<td>G1F3</td>
<td>-</td>
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<tr>
<td>Mathematics with Statistics</td>
<td>G1G3</td>
<td>-</td>
</tr>
<tr>
<td>Mathematics with Statistics for Finance</td>
<td>G1GH</td>
<td>-</td>
</tr>
<tr>
<td>Mathematics, Optimisation and Statistics</td>
<td>GG31</td>
<td>-</td>
</tr>
<tr>
<td>Mathematics with a Year Abroad</td>
<td>-</td>
<td>G104</td>
</tr>
</tbody>
</table>

(Includes study abroad year at a partner institute in Europe/North America)

The Department offers seven BSc Honours degrees and two MSci Honours degrees. The first two years of the BSc and MSci degrees are essentially the same so there is some opportunity for transfer between these degrees.

The First Year, and most of the Second Year, course of study is similar in all the degree programmes, except that some of the electives are compulsory in some of the specialist programmes. The overall programme design is such that the modules, from which individual choices are expected to be made in the later Third (and possibly Fourth) Year of study, mainly fall into the various subject groups: Pure Mathematics, Applied Mathematics, Mathematical Physics, Numerical Analysis, Statistics and Mathematical Methods. Students may choose freely from the overall set of modules available to them (subject to Departmental approval). There is considerable flexibility so that individual students may remain broad in their interest or become more specialised. A final choice of degree registration among G100, G102, G125, G1F3, G1G3, G1GH and GG31 is not necessary until the third year of studies, but students need to be aware of the requirements of specific programmes when making choices in the first two years.

Note: Some modules are also attended by students on the Joint Mathematics and Computer Science degree.

All degrees are subject to the College Academic Regulations and can be viewed online at: [http://www.imperial.ac.uk/about/governance/academic-governance/regulations/](http://www.imperial.ac.uk/about/governance/academic-governance/regulations/)

BSc (Honours) Degrees: Every graduating Honours student qualifies for a BSc G100 Mathematics degree. Alternatively, they may opt for a specialist degree – G102, G125, G1F3, G1G3, G1GH or GG31. To qualify for the BSc specialist degrees, students will be required to take a certain number of modules from a specified subset of the full list of
options. A student who does not satisfy the requirements for a specialist degree, but who does satisfy the overall requirements, will be awarded a BSc degree in G100 Mathematics. Exit awards for those not meeting progression or Honours requirements are available at the end of years 1, 2 or 3.

**Progression Requirements for three-year degrees** G100, G102, G125, G1F3, G1G3, G1GH and GG31:

In order to progress to the next level of study, you must have passed all modules (equivalent to 60 ECTS) in the current level of study at first attempt, at resit or by an allowed (dependent on degree programme) compensated pass.

The overall weighted average for each year must be 40%, including where a module(s) has been compensated, in order for you to progress to the next year of the programme.

**MSci Degrees:** The MSci is an undergraduate ‘Masters’ degree with a final year at the level of a taught postgraduate MSc programme. On successful completion, a degree title on the lines of ‘Master in Science (incorporating Bachelor’s level study)’ is awarded. The department offers two MSci degrees – G103 and G104.

Very occasionally, circumstances may require the Department to graduate an MSci student with a BSc.

**Progression Requirements for G103 and G104:**

**G103:** In order to progress to the next level of study, you must have passed all modules (equivalent to 60 ECTS) in the current level of study at first attempt, at resit or by a compensated pass. Additionally, the overall aggregate mark for the year, including where a module(s) has been compensated, must normally be at least as follows:

- year 1: 40 percent
- year 2: 60 percent
- year 3: 58 percent.

A student who fails to meet the above threshold in year 2 may remain on the G103 programme if they have a year 2 aggregate mark of at least 55 percent. However, they will normally be required to achieve an aggregate mark of at least 60 percent in year 3. A student who is not permitted to remain on G103 for year 3 will be transferred to a BSc degree.

**G104:** In order to progress to the next level of study, you must have passed all modules (equivalent to 60 ECTS) in the current level of study at first attempt, at resit or by a compensated pass. Additionally, the overall aggregate mark for the year, including where a module(s) has been compensated, must normally be at least as follows:

- year 1: 40 percent
- year 2: 60 percent

Satisfactory completion of a language requirement (Level 3 or above, as determined by the College’s Centre of Languages, Culture and Communication) will normally be required for students spending their year abroad in a non-English speaking country. This will include in most cases, students being required to take and pass language modules at the College’s Centre for Languages, Culture and Communication (or its equivalent elsewhere) in Years 1 and 2. Language modules taken do not count for degree classification and are instead for pass/fail credit.
A student who is not permitted to remain on G104 for year 3 will be transferred to a BSc or MSci Mathematics degree.

Please note that students in Year 1 who pass less than 20 ECTS credits in their first attempt, will normally be instructed to terminate their studies and withdraw from the College.

**Full progression information is available in the Programme Specifications:**

**Degree Changes**

Students are able to change between three-year mathematics degree programmes (or dropping down from a four-year to a three-year programme) by completing a Degree Change form and (if appropriate) ensuring that they comply with the requirements for any specialist coding module options.

Students wishing to move to the G103 programme (after the first year) must be able to comply with the Year 2 and 3 mark requirements.

Students may be able to transfer into G104 if they can satisfy the Department of their language skills (if wishing to go to a partner institution in Europe). Normally such transfers will be considered at the end of the First Year of study. Students must also meet the normal G104 Year 2 mark requirements in addition to the language requirements.

Selection for the Year Abroad at MIT takes place in the second term of second year. Places are limited.

International students on a Tier-4 visa are advised to consult the International Student Support Office prior to making ANY degree change as you may be required to apply for a new visa (outside of the UK).

To request a degree change, students must complete a Degree Change form which can be found on Blackboard Maths Central or inside the Undergraduate Office. The form should be returned to the Undergraduate Office.

All degree transfer requests should normally be made by 31st of March.

**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/ug/apply/requirements/english](http://www.imperial.ac.uk/study/ug/apply/requirements/english)

For information on English language support available while you’re here, see the Centre for Academic English:

- [http://www.imperial.ac.uk/academic-english](http://www.imperial.ac.uk/academic-english)

The Department of Mathematics offers extra English language classes to students who are identified as benefiting from extra language support through the English language test given
at the beginning of Term 1. The English language classes are timetabled in addition to the Mathematics modules. Attendance is compulsory. The classes are taught by staff from the Centre of Academic English. Good working knowledge of English is seen as vital to success on the programme.

**Year Programmes**

The academic programme takes place over three terms – Term 1 (also known as Autumn Term), Term 2 (also known as Spring Term) and Term 3 (also known as Summer Term).

The programme of study is broadly based so that students are given a variety of core modules across different areas of mathematics in the first two years, building a strong foundation for more in-depth study.

**Learning and Teaching Delivery Methods**

You will learn though a combination of lectures, problem classes, tutorials, computing lab classes, group work and self-study. Support for learning, in the form of tutorials and problem classes, is tapered. It is greater in the early stages of the programme, allowing students to develop into fully-independent learners by the end of the programme.

**Lectures**

Typically, a 5 ECTS module will have 20 lectures. In the core modules in years 1 and 2, you will be together with your whole cohort. In elective modules, particularly in year 3, the class size can be much smaller. Lecturers will take a variety of approaches. In some lectures, the lecturer will focus on presenting new material, often writing out arguments, examples and calculations by hand and adjusting the pace of the delivery to suit students’ understanding. In other lectures, you may be expected to have studied material beforehand and the lecture will be an interactive session to develop your understanding.

You should aim to make notes during lectures. Sometimes, typed lecture notes will be available for a module, but you should not expect this in every module. Where they are available, they may be a condensed version of the notes you can take during lectures. Most lectures will be recorded using the Panopto system. This is useful for reviewing those parts of lectures which you may have found difficult, or for catching up on a lecture you have missed due to illness. It should be not used as a substitute for attending lectures.

**Tutorials**

In terms 1 and 2 of year 1, you will have a weekly tutorial with a staff member (usually your personal tutor) as part of a small group (around 5 or 6). You will also have a ‘peer-tutorial’ with a higher-year undergraduate or MSc student. You need to prepare in advance for these tutorials and attendance is recorded.

**Problem-solving and group learning classes**

In addition to lectures, most year 1 and 2 modules are supported by timetabled classes delivered by at least one staff member, normally the lecturer, supported by a team of Graduate Teaching Assistants. The classes are usually delivered to all students on the module, divided into a number of rooms. You will be expected to prepare for these classes by working on problem sheets produced by the lecturers. Activities in the classes can include: working in small groups with the assistance of a GTA or the lecturer; engaging with
presentations of solutions to the problems or working on challenging unseen problems individually or in groups.

In year 3, lecturers will include regular problem-solving sessions as part of their timetabled lectures.

**Independent learning**

You will be expected to spend a substantial amount of time on independent study. This will include preparation for and working on material from lectures; working through problem sheets and other formative assignments either individually or in groups; other preparation for tutorials and problem-solving/ group learning classes; producing coursework for submission and assessment; preparation for examinations.

**Group Learning**

You will have the opportunity to work in groups through tutorials, problem-solving classes, projects and assessments. These opportunities will give you the opportunity to deepen your mathematical understanding and develop improved communications and team work skills.

**Research Projects**

In term 3 of years 1 and 2, you will undertake a short research-oriented project. The year 1 project is an individual project and the year 2 project is a group project (in a group of around 5 students) directed by a member of staff. In year 3, if you are on a 3-year degree programme you may complete a 7.5 ECTS Research Project as one of your elective module. If you continue to do the MSci, you will complete a substantial project in your final year, worth 15 ECTS.

**Overall Workload**

Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the optional modules you choose to study, the following gives an indication of how much time you will need to allocate to different activities at each level of the programme. At Imperial, one ECTS credit is taken to equate to an expected total study time of 25 hours. Therefore, the indicative total study time is 1500 hours per year. As these are indicative study times, you may need to make adjustments to these suggested times to account for your individual learning style.

During year 1 you will typically spend around 22 percent (330 hours) of your time in lectures, problem classes and tutorials. In year 2 it will be around 20 percent (300 hours), and around 16 percent (240 hours) in year 3. The remaining time is for self-study.

**First Year Programme**

Students on all programmes study the modules indicated below. The full Module Specifications are available on Blackboard under Course Information, in the Year 1 Folder.

If a module is designated as core it must be passed, if necessary after reassessment, in order to progress to the second year.

If a module is designated as compulsory or elective, examiners may decide to award a compensated pass if the module mark is no more than 10 percent below the pass mark. (see p. 37) In years 1 and 2, such compensation will normally only be applied after one reassessment attempt.
‘Weighting’ is the weighting of the overall module mark in the year total.

Students may also opt to take an Imperial Horizons module (see more information later in this Handbook) as an extra module. Horizons modules in Year 1 do not count towards the Honours Degree programme or marks.

In the information below, please note that week n of term 2 will show as week 14+n of the College year on timetables.

<table>
<thead>
<tr>
<th>Module Codes</th>
<th>Module Title</th>
<th>No. of Lectures/ Classes (Approx.)</th>
<th>Terms</th>
<th>Core/ Compulsory</th>
<th>Weighting</th>
<th>ECTS Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH40001</td>
<td>Introduction to University Mathematics</td>
<td>24 / 16</td>
<td>1 (weeks 1-4)</td>
<td>Core</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>General Overview:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students receive formative feedback during problem-solving classes and tutorials.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summative assessment will be based on:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10% coursework portfolio which may comprise of any or some of the following: on-line quizzes, written coursework, group work, or other small assignments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20% in-class test (week 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20% in-class test (week 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50% in-class test (week 4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>As this is a fundamental module, students will be allowed several attempts at some of the assessments, but the pass mark will be 50 percent rather than 40 percent. The module is pass/fail.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH40002</td>
<td>Analysis 1</td>
<td>40 / 14</td>
<td>1 (weeks 5-11)+2</td>
<td>Core</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>General Overview:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analysis I is a rigorous treatment of some basic concepts involving limits of real and complex numbers. It covers limits of sequences and series of real and complex numbers, the continuity and differentiability of functions, and limiting constructions leading to the integral of a single-variable function.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assessment:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students receive formative feedback during problem-solving classes and tutorials.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Summative assessment will be based on:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5% 1-hour in-class test (week 8, Term 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10% 1-hour exam (week 1, Term 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5% 1-hour in-class test (week 6, Term 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10% coursework portfolio which may comprise of any or some of the following: on-line quizzes, written coursework, group work, or other small assignments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>70% 3-hour final exam (Term 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH40003</td>
<td>Linear Algebra and Groups</td>
<td>40 / 14</td>
<td>1 (weeks 5-11)+2</td>
<td>Core</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>General Overview:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Hours</td>
<td>Weight</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>-------------------</td>
<td>---------------------------------------</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH40005</td>
<td>Probability and Statistics</td>
<td>40 / 14</td>
<td>1 (weeks 5-11)+2</td>
<td>Core 2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>MATH40004</td>
<td>Calculus and Applications</td>
<td>40 / 14</td>
<td>1 (weeks 5-11)+2</td>
<td>Core 2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>MATH40007</td>
<td>Introduction to Applied Mathematics</td>
<td>20 / 17</td>
<td>2</td>
<td>Core for G1F; otherwise compulsory 1</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
**General Overview:**
This module aims to show students how the ideas they learn in Year 1 can be used to provide a mathematical underpinning for a range of scientific problems. The objective of the course is to describe a unified mathematical framework that embraces multiple disciplines involving engineering challenges as well as problems outside the physical sciences such as economics and statistics.

**Assessment:**
Students receive feedback during problem-solving classes and tutorials.

Summative assessment will be based on:
- 5% coursework #1
- 20% in-class midterm test (week 6 of Term 2)
- 5% coursework #2
- 70% cumulative final exam

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<table>
<thead>
<tr>
<th>Module Title</th>
<th>No. of Lectures/Classes (Approx.)</th>
<th>Terms</th>
<th>Core/Compulsory</th>
<th>Weighting</th>
<th>ECTS Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MATH40006</strong> Introduction to Computation</td>
<td>6 / 25</td>
<td>1 (weeks 5-11)+2</td>
<td>Core</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

**General Overview:**
This module provides an introduction to computation and programming in Python. The illustrative examples, practice questions and assessment tasks will be guided by computational principles and their underlying mathematical concepts; this is a module that aims to equip students with a general understanding that they can adapt to fresh problems and different programming environments.

**Assessment:**
Students receive formative feedback during the tutored labs.

Summative assessment will be in the form of four assessments of equal weighting of 25% each.

<table>
<thead>
<tr>
<th>Module Title</th>
<th>No. of Lectures/Classes (Approx.)</th>
<th>Terms</th>
<th>Core/Compulsory</th>
<th>Weighting</th>
<th>ECTS Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MATH40008</strong> Individual Research Project</td>
<td>6 / 6</td>
<td>3</td>
<td>Core</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

**General Overview:**
This module allows students to develop elementary research skills in mathematics while developing their personal interests in a specific area or mathematics.

**Assessment:**
Students receive formative feedback during tutorials and workshops.

Individual summative feedback is provided by comments on the poster and the oral.

Poster: 60%
Oral: 40%

---

**G104 only:**

**Module Title**

<table>
<thead>
<tr>
<th>Language: G104 students normally take a language module in addition to the mathematics modules</th>
<th>No. of Lectures/Classes (Approx.)</th>
<th>Terms</th>
<th>Core/Compulsory</th>
<th>Weighting</th>
<th>ECTS Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>English language</td>
<td>16 hours</td>
<td>1</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

International students (if required):
Second Year Programme

In the Second Year, students continue to build a breadth of understanding in mathematics and study a number of core modules. In addition to these, students will be able to select a number of optional modules to deepen their understanding in specific areas of mathematics. Electives can be prerequisites for year 3 modules, but students will be advised about such dependencies prior to making their choice of year 2 electives; prerequisites can be varied at the discretion of the Department.

Students will also take an I-Explore module in their second year:

Through I-Explore, you’ll have the chance to deepen your knowledge in a brand new subject area, chosen from a range of for-credit modules built into your course. From academic year 2019/20, all of the College’s undergraduate courses will include one module from I-Explore’s wide selection.

[www.imperial.ac.uk/study/ug/i-explore](http://www.imperial.ac.uk/study/ug/i-explore)

The full Module Specifications for the Mathematics modules below are found under the Year 1 folder as these are part of the new curriculum (the current Year 2 students in 2019-2020 are following modules from the old curriculum). Mapping between modules, where appropriate is available in the examinations section of Maths Central on Blackboard to support with exam revision.

Choice of electives is dependent on Degree programme. Students on specialist programmes will be required to take some of the optional modules in Year 2 as compulsory electives. Students will choose options as follows:

G100: Select one module from Group A and 4 modules from Group B.

G102: Select one module from Group A and 2 modules from Group B. The modules Network Science and Principles of Programming are considered core for this Degree coding and must be taken. Select 2 further modules from Group B.

G125: Select one module from Group A. The modules Groups and Rings and Lebesgue Measure and Integration are considered core for this Degree coding and must be taken. Select 2 further modules from Group B.

G1F3: Select one module from Group A. The module Partial Differential Equations in Action is considered core for this Degree coding and must be taken. Select 3 further modules from Group B.

G1G3: Select one module from Group A. The modules Probability for Statistics and Statistical Modelling I are considered core for this Degree coding and must be taken. Select 2 further modules from Group B.

G1GH: Select one module from Group A. The modules Probability for Statistics and Statistical Modelling I are considered core for this Degree coding and must be taken. Select 2 further modules from Group B.

GG31: Select one module from Group A. The modules Probability for Statistics and Statistical Modelling I are considered core for this Degree coding and must be taken. Select 2 further modules from Group B.

G103: Select one module from Group A and 4 modules from Group B.
G104: Select one module from Group A (if you are required to take a language module, this may be taken as your I-Explore module, or you may take this in addition to your language module) and 4 modules from Group B.

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Terms</th>
<th>Core/ Compulsory</th>
<th>Group</th>
<th>Weighting</th>
<th>ECTS Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Algebra and Numerical Analysis</td>
<td>1+2</td>
<td>Core</td>
<td></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Analysis II</td>
<td>1+2</td>
<td>Core</td>
<td></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Multi-variable Calculus and Differential Equations</td>
<td>1+2</td>
<td>Core</td>
<td></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Group Research Project</td>
<td>3</td>
<td>Core</td>
<td></td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>i-Explore or Horizons Module</td>
<td>Various</td>
<td>Compulsory (pass/ fail)</td>
<td>A</td>
<td>0</td>
<td>5 or 7.5</td>
</tr>
<tr>
<td>Groups and Rings</td>
<td>1</td>
<td>Elective</td>
<td>B</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Lebesgue Measure and Integration</td>
<td>2</td>
<td>Elective</td>
<td>B</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Probability for Statistics</td>
<td>1</td>
<td>Elective</td>
<td>B</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Statistical Modelling I</td>
<td>2</td>
<td>Elective</td>
<td>B</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Network Science</td>
<td>1</td>
<td>Elective</td>
<td>B</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Partial Differential Equations in Action</td>
<td>2</td>
<td>Elective</td>
<td>B</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Principles of Programming</td>
<td>2</td>
<td>Elective</td>
<td>B</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

G104 students normally take a language module in addition to the mathematics modules 1 + 2  Core (if required)  Weighting: 0  ECTS: 7.5
Third Year Programmes

In the Third Year, students choose all of their modules and will take between 60 and 62.5 ECTS. At least 52.5 ECTS must come from 3rd year (level 6) Mathematics modules. Specialist Degrees will require students to take a certain number of modules from a specified subset of available modules. Full information on these requirements are available in the Programme Specifications for each degree programme. Students may seek advice from specialist staff at set Office Hours and their Personal Tutors on module choices which align with their individual interests and strengths.

The list of modules below is indicative only and is subjective to change. Please note that the Third and Fourth years of the Undergraduate Programme are under review as part of the College’s Learning and Teaching Strategy and Departmental Curriculum Review.

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Core/Elective</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid Dynamics 1</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Fluid Dynamics 2</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Asymptotic Analysis</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Methods of Mathematical Physics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Dynamics of Games</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Dynamical Systems</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Bifurcation Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometric Mechanics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Classical Dynamics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematical Finance: An Introduction to Option Pricing</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematical Biology</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Methods for Data Science</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Quantum Mechanics 1</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Special Relativity and Electromagnetism</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Course Title</td>
<td>Type</td>
<td>Credits</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Tensor Calculus and General Relativity</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Theory of Complex Systems</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Quantum Mechanics II</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Introduction to Partial Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Function Spaces and Applications</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Advanced Topics in Partial Differential equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Finite Elements: Numerical Analysis and Implementation</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Numerical Solution of Ordinary Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Computational Linear Algebra</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Computational Partial Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Scientific Computation</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Probability</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Functional Analysis</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Fourier Analysis and Theory of Distributions</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Markov Processes</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometry of Curves and Surfaces</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometry 1: Algebraic Curves</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometry 2: Algebraic Topology</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Algebra 3</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Group Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Course</td>
<td>Type</td>
<td>Credits</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Galois Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Group Representation Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematical Logic</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Graph Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Number Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Algebraic Number Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Statistical Modelling 1</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Statistical Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Statistical Modelling 2</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Applied Probability</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Time Series</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Stochastic Simulation</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Communicating Mathematics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematics of Business &amp; Economics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>High Performance Computing</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Research Project in Mathematics (for BSc students only)</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Groups and Rings</td>
<td>Elective (level 5)</td>
<td>5</td>
</tr>
<tr>
<td>Lebesgue Measure and Integration</td>
<td>Elective (level 5)</td>
<td>5</td>
</tr>
<tr>
<td>Probability for Statistics</td>
<td>Elective (level 5)</td>
<td>5</td>
</tr>
<tr>
<td>Statistical Modelling I</td>
<td>Elective (level 5)</td>
<td>5</td>
</tr>
<tr>
<td>Partial Differential Equations in Action</td>
<td>Elective (level 5)</td>
<td>5</td>
</tr>
<tr>
<td>i-Explore, Horizons or BPES module</td>
<td>Elective</td>
<td>5 or 7.5</td>
</tr>
</tbody>
</table>
Fourth Year Programme

Those students on the G103 and G104 degree programmes continue to the fourth year of the programme. In Year 4, students choose six 4th year (level 7) modules. A student may not take both the Year 3 and Year 4 version of a module. Modules from other departments may be allowed with the permission of DUGS.

All students also take the core Mathematics Research Project module. (15 ECTS).

The list of modules below is indicative only and is subjective to change. Please note that the Third and Fourth years of the Undergraduate Programme are under review as part of the College’s Learning and Teaching Strategy and Departmental Curriculum Review.

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Core/Elective</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid Dynamics 1</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Fluid Dynamics 2</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Vortex Dynamics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Asymptotic Analysis</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Methods of Mathematical Physics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Dynamics of Games</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Dynamical Systems</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Bifurcation Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Advanced Dynamical Systems</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Random Dynamical Systems and Ergodic Theory: Seminar Course</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometric Mechanics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Classical Dynamics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematical Finance: An Introduction to Option Pricing</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematical Biology</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Course</td>
<td>Type</td>
<td>Credits</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Methods for Data Science</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematical Physics 1: Quantum Mechanics</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Special Relativity and Electromagnetism</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Tensor Calculus and General Relativity</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Theory of Complex Systems</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Quantum Mechanics II</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Stochastic Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Computational Stochastic Processes</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Introduction to Partial Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Function Spaces and Applications</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Advanced Topics in Partial Differential equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Finite Elements: Numerical Analysis and Implementation</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Numerical Solution of Ordinary Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Computational Linear Algebra</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Computational Partial Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Scientific Computation</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Probability</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Functional Analysis</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Fourier Analysis and Theory of Distributions</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Course</td>
<td>Type</td>
<td>Credits</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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<td>---------</td>
</tr>
<tr>
<td>Analytic Methods in Partial Differential Equations</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Stochastic Calculus with Applications to non-Linear Filtering</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Markov Processes</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometry of Curves and Surfaces</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometry 1: Algebraic Curves</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Geometry 2: Algebraic Topology</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Algebraic Geometry</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Riemannian Geometry</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Manifolds</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Differential Topology</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Complex Analysis</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Algebra 3</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Group Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Galois Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Group Representation Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Lie Algebras</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Commutative Algebra</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Infinite Groups</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Algebra 4</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Mathematical Logic</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Modular Representation Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Course</td>
<td>Type</td>
<td>ECTS</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>---------</td>
<td>------</td>
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<tr>
<td>Graph Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Number Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Algebraic Number Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Number Theory: Elliptic Curves</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Modular Forms</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Statistical Theory</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Statistical Modelling 2</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Applied Probability</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Time Series</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Stochastic Simulation</td>
<td>Elective</td>
<td>7.5</td>
</tr>
<tr>
<td>Multivariate Analysis</td>
<td>Elective</td>
<td>5</td>
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<tr>
<td>Machine Learning</td>
<td>Elective</td>
<td>5</td>
</tr>
<tr>
<td>Graphical Models</td>
<td>Elective</td>
<td>5</td>
</tr>
<tr>
<td>Bayesian Methods</td>
<td>Elective</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics Research Project</td>
<td>Core</td>
<td>15</td>
</tr>
</tbody>
</table>

**Imperial Horizons**

The College has created the ‘Imperial Horizons’ programme to broaden students’ education and enhance their career prospects. This programme is open to all undergraduate students. The programme allows students to take not-for-credit modules in topics such as psychology, business, languages, sound technology, etc., in addition to their core mathematics modules. Students will need to register for their desired options separately through the Horizons Programme at the start of the year.

The Department of Mathematics always endeavours to avoid timetabling core Mathematics modules during the times allocated for Horizons modules.

**Note that modules on this programme normally do not contribute to degree Honours marks but do have an ECTS value of 7.5.**
In Year 2 they may be taken for credit as the required I-Explore option.

Further information about the 'Imperial Horizons' programme can be viewed online at:
https://www.imperial.ac.uk/horizons/

**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](http://www.imperial.ac.uk/imperialmobile)

**Imperial Success Guide**
The Imperial Success Guide is an online resource with advice and tips on the transition to university level study. More than just a study guide, it is packed with advice created especially for undergraduate 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](http://www.imperial.ac.uk/success-guide)

### 3. Assessment

**Forms of Assessment**

A variety of assessment methods will be used to test your understanding. Assessments may be formative, summative or both.

**Formative assessments** do not contribute to the module mark but provide information on your progress as an individual and in the context of your peers. This allows you to learn by using your new skills to solve problems and receive feedback on your performance to guide your future learning. This supports you to achieve a better performance in the summative assessments which do count towards your module marks. Common types of formative assessment used include: regular question sheets, questions posed by a lecturer in lectures, and exercises set by your tutor or peer-tutor.
Summative assessments are used to assess your learning against the intended module learning outcomes and contribute towards your achievement of the programme learning outcomes, detailed above. All modules contain aspects of summative assessment and these assessments will contribute towards your mark for each year. Usually the grades for summative assessment are assigned by lecturers or graduate teaching assistant but occasionally your work will be peer assessed (i.e., your grade is provided by one or more of your fellow students).

The choice of summative assessment method is largely determined by the nature of the module and its learning outcomes.

A variety of different summative assessment methods is used, including:

- Written examinations
- Short, individual tests
- Group assignments and projects
- Individual Projects
- On-line tests and quizzes
- Oral presentations
- Poster presentations.

Lecture modules in all years typically involve an end-of-year examination and some element of coursework or short tests during the module. In year 1 the end-of-year examination is usually worth 70 percent of the module; this typically increases to 80 percent in year 2 and 90 percent in years 3 and 4. Some modules, notably ones with a high computational or data analysis element, may have a higher proportion of coursework or may be assessed entirely a number of projects (which may also involve presentations).

The exact nature and frequency of these forms of assessment is decided by individual Module Lecturers. Assessed coursework is not normally set with a submission deadline after the end of the current term, though exceptions to this may be permitted for major projects.

Marked assessed coursework and progress test scripts are returned to students to provide useful feedback.

Information on assessments is included in the full Module Specifications available online on Blackboard Maths Central.

Assignments and Projects

Some modules are wholly project/assignment based and have no end-of-year examination. For some of these modules, oral presentations about the project(s) may form part of the overall assessment for the module. In Year 3 and 4 some modules assessed wholly by project/assignment may have submission dates after the end of term.

Assignment and project scripts normally need to be retained by the Department as External Examiners have the right to see them. **Students should keep a copy of all assignments and project work submitted.** For modules where assignments are worth over 10%, if work is returned to students, they may be asked to return the marked work to the Department to be reviewed by the External Examiners.

In the Third and Fourth Year modules, due to the amount of work Project-only modules require during term-time, students will normally be allowed to sign up for only one Project-only module per term. If students wish to apply for more, they will need to seek special
permission from the Undergraduate Senior Tutor. Also note that students who take modules which are wholly assessed by project will be deemed to be officially registered on the module through the submission of a specified number of pieces of assessed work for that module. This will be communicated by the lecturer at the start of the module. Thus, once a certain point is reached in these modules, a student will be committed to completing the module.

Fourth Year Mastery Material

All Year 4 mathematics modules’ final exams will be 2.5 hours in length (unless otherwise specified). The papers will include five questions. Where a module is available in a 3rd year (level 6) and a 4th year (level 7) version, the 4th year exam will normally consist of the four questions given to 3rd year students on the module, plus a fifth ‘mastery’ question. This additional question will test the subject in greater depth, often on the basis of extension material provided by the lecturer for students’ self-study (‘mastery material’).

Submitting Assessed Work

**Please Note:** When submitting assignments or projects (as opposed to assessed coursework), please follow separate instructions if provided by the Module Lecturer, Project Supervisor or the Undergraduate Office.

Most assessed work is submitted via the Undergraduate Office or electronically via Blackboard. If submitting via the Office, you will need to place your work in the correct pigeon hole in the corridor opposite the Office.

The corridor pigeonholes are arranged by TID number for First Year students and alphabetically for all other years. Please place your work in the relevant section and slot, according to your TID/first letter of your surname, beneath the sign specific to your coursework.

Please note that these are not the pigeon holes inside the Office – these are for collecting your work.

**Plagiarism is a serious offence and all assistance MUST be referenced. Each piece of work MUST be accompanied by a signed declaration, ‘This is my own unaided work unless stated otherwise’.** This is printed on the coversheets available for assessed coursework and assignments, which can be found inside the Undergraduate Office or on Blackboard MathsCentral.

When submitting electronically, you will be asked to agree to the statement upon your submission, or place a statement in your assignment.

**Deadlines**

Unless you are instructed otherwise by your Module Lecturer or Project Supervisor, the deadlines for the submission of assessed work are as follows:

- Year 1 modules - 12 noon
- Year 2 modules - 14.00
- Year 3, 4 and 5 modules - 16.00
Time/date deadlines will be strictly adhered to by the Office.
If you want to submit assessed work before the deadline date, please hand your work directly to the Undergraduate Office.

Late Submission of Assessments
Students must submit coursework assessment by the published deadline (date and time). Submission dates and times are in UK local time. Any Extension Requests for Mitigating Circumstances must be received in good time, normally should be received prior to the deadline, or at latest within 24 hours of the coursework due time.

Late Submission
Any piece of assessed work which is submitted beyond the published deadline (date and time) is classed as a late submission. Work submitted more than 24 hours late will not be accepted as a valid attempt and a mark of zero will be recorded. Work submitted up to 24 hours after the deadline will be marked but capped at the pass mark.

This is the default penalty for late submissions of assessed work and should be deviated from only in exceptional circumstances.

Following is a list of circumstances in which the default penalty may be amended
(a) Mitigating circumstances which are declared by the candidate in writing. Mitigating circumstances must be independently corroborated and of sufficient severity to have affected the candidate's ability to meet the deadline, for example illness or family bereavement;
(b) If, in the judgement of the Undergraduate Senior Tutor, the default penalty is considered unreasonably harsh in the circumstances, for example, where it will impact adversely on the progression or graduation of a candidate, or if one member of a group has submitted work late which impacts on the rest of the group through no fault of their own.

Feedback for Late Submissions
Work submitted more than 24 hours late will normally be returned with a notional mark and feedback. If the work has not been submitted within a reasonable time period the department may decide that it would not be educationally helpful to provide feedback.

Further guidance on Late Submission of Assessments can be found on the Academic Governance website:

www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/academic-policy/marking-and-moderation/Late-submission-Policy.pdf

Missed Assessed Work
If, due to illness or a serious personal matter, you miss a scheduled test or coursework, please fill out a Mitigating Circumstances Form. These are available inside the Undergraduate Office or on Blackboard Maths Central. The Mitigating Circumstances Board will make a decision on the request and students will be informed by email of the outcome. For Year 1 & 2 modules with a final exam and Year 3 & 4 modules with an exam worth 90%, pro-rata marks for the missed assessment may be awarded. Pro-rata marks will be based on the raw exam mark for the module concerned. If you know ahead of time that you will be absent on the day, please inform the Year Tutor or Senior Tutor; depending on the
circumstances you may be able to apply for mitigating circumstances. Coursework can always be handed in early directly to the Undergraduate Office.

**Policy on Coursework Deadline Extensions**

In exceptional cases, deadline extensions can be granted for coursework. In Year 1 extensions are normally granted only in the Introduction to Computing module as well as the Individual Research Project; modules in which there is no exam. Mitigation for any small coursework in Year 1 (10% or less) should be applied through filling out the Mitigating Circumstances Form, as above.

Extension Request Forms should be directed to the Undergraduate Senior Tutor. The form can be found inside the Undergraduate Office as well as on Blackboard Maths Central. If the extension request is on health grounds medical evidence will be required. Lecturers should not be approached for extensions - the Undergraduate Senior Tutor will liaise with the lecturer on students' behalf.

**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:

[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](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)

**Departmental Information on Academic Feedback**

Feedback to students on their work will be provided in a number of formats, including:

- Oral (i.e. face-to-face) during problem classes (via the Department’s ‘Meet Your Marker Scheme’) and tutorials
- Personal (discussion with staff)
- Written (e.g. model answers, group feedback, individual comments written on coursework)
- Interactive (on-line quizzes).

Oral feedback on formative work is available in problem classes, lecturers’ office hours and tutorials.

Written feedback on coursework and tests will normally be provided within two weeks.

Written feedback is provided on projects.

Assessed work provisional marks are also made available on Blackboard. Please note that all marks available on Blackboard are provisional and subject to ratification by the Exam Board – please see more information below.

Past Examination papers, along with model solutions, mark schemes and comments from the markers are available on Maths Central on Blackboard to provide general feedback on the examinations.
Please note that your examination scripts once completed belong to the College under the GDPR legislation. This means that you do not have the right to view them. Please see the College GDPR webpages for further information at www.imperial.ac.uk/admin-services/secretariat/information-governance/data-protection/internal-guidance/guide-2---exam-records/

However, as a way of providing feedback which can assist with work in future years, the Mathematics Department allows students to view and discuss with an appropriate lecturer the marked scripts from their year 1 and 2 exams.

Collection of Marked Assessed CW and Tests

If a particular piece of assessed work or progress test has been marked and is available, the marks will be made available on Blackboard. Once marks are visible on Blackboard, work submitted by paper-copy will be available for collection. Any feedback for electronic submissions will normally be made available via Blackboard.

The Department works towards a two-week turnaround deadline on tests and short assessed coursework (worth 10% or less). Larger pieces of work, projects and assignments, may take longer to return. If there is a delay, please contact the Undergraduate office.

Some work (i.e. assignments and projects) is not returned to students and you might receive a feedback form (digital or paper) instead.

First Year assessed work and tests turned in on paper may be returned by Personal Tutors (except at the end of term). Online work will receive feedback online.

Marked assessed coursework and progress tests for First Year (at the end of term), Second – Fourth Year modules will be returned via the pigeonholes in the Undergraduate Office.

The pigeonholes are in four sections:

- First Year Students (used at the end of term)
- Second Year Students
- Third Year Students
- Fourth Year Students & Erasmus/Other Students & MSc (Pure/Applied) Students.

For First and Second Years the sections are arranged by TID number, for Third, Fourth and other, the sections are arranged alphabetically by surname.

If your work should be in the pigeonholes but you cannot find it, it could be because another student has misfiled the paperwork after having looked through the scripts. Please check the surrounding pigeonholes before making enquiries in the Undergraduate Office.
Provisional Marks Guidance

Provisional marks are agreed marks that have yet to be ratified by the Board of Examiners. Such marks are indicative only 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:


Querying Marks

Assessed Coursework

Sometimes students believe they have been marked harshly or incorrectly.

At their Problem Solving Classes, First and Second Year students will have an opportunity to meet the individual markers of their progress tests/assessed coursework and have the rationale behind the attribution of marks explained. This is part of our ‘Meet Your Marker’ Scheme.

If the mark query relates to assessed coursework, mid-term or progress tests, assignments or projects, First and Second Year students should first consult the Marker. Any other queries should be addressed to the Personal Tutor (First Years) or the Module Lecturer (First and Second Years). Third and Fourth Year students should consult the Module Lecturer.

In some circumstances it may be appropriate to consult your Year Tutor or the Undergraduate Liaison Officer.

If a mark change is authorised, the Undergraduate Office must be notified so the mark can be amended on the Departmental database. The mark change must come from the marker.

Summer Examinations

If the mark query relates to summer examinations, students should be aware that examinations are double marked and checked very carefully. College regulations do not permit students to have their examination scripts returned and marks may only be changed if there has been an administrative error.
Examinations and Final Module Marks

**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 (All continuing students) and the Single Set of Regulations (all new entrant undergraduate students, and selected postgraduate programmes).

Instructions for exam candidates can be found here:


Examination information can also be viewed on Blackboard ([https://bb.imperial.ac.uk](https://bb.imperial.ac.uk)) Maths Central in the Examinations section.


**May/June Examinations and September Examinations**

A small number of modules are assessed by project but most modules are primarily assessed by examinations that take place in May/June, Term 3. There is a separate examination for most modules in the programme.

Examination registration takes place at the beginning of Term 2.

Note that on Year 3 and 4 modules that are assessed wholly by project, a student will be deemed to be officially registered on the module through the submission of a specified number of pieces of assessed work for that module. Thus, once a certain point is reached in these modules, a student will be committed to completing the module.

Each module is given a percentage mark as well as a Pass/Fail rating.

For Year 1, 2 and 3 modules the module pass mark is 40 percent (with the exception of the Introduction to University Mathematics module for which the pass mark is 50 percent). For Year 4 (MSci) modules, the module pass mark is 50 percent.

The 10 ECTS modules in Years 1 and 2 have exams of three hours in length. These exams will have six questions, worth 20 points each. The 5 ECTS modules in Years 1 and 2 and the 7.5 ECTS modules in Year 3 will have exams of shorter length, usually two hours and four questions, please note exceptions as per the Module Specifications. Year 4 examinations will be two and a half hours in length and include a mastery question as the fifth question.

It is very important to prepare properly during the year for the examinations. Indeed you should realise that most extreme examination anxiety is caused by lack of preparation and so you need to work hard during the year with the May/June examinations in mind.

Students who do not obtain Passes in modules at the first attempt will be expected to attend resit (reassessment) examinations. For First and Second year modules, these will be in
early September. The Board of Examiners will determine the appropriate form of reassessment of project-modules in years 1 and 2. Further resit opportunities on First and Second Year modules will be available the following May/June. For the Introductory module MATH40001, there will be additional resit opportunities in January and May of year 1.

Resit opportunities for Third and Fourth Year modules will be available the following May/June (NOT normally in September).

**Resit examinations are for Pass credit only – a maximum mark of the pass mark for the module will be credited.** Once a Pass is achieved, no further attempts are permitted.

In determining whether a Mathematics module has been passed at a resit attempt, if a resit exam has been passed, then the Board of Examiners may discount any module marks obtained from coursework and award an overall pass mark for the module. This will apply to 1st and 2nd year modules and any other modules with a final exam worth at least 90 percent of the module mark.

Two resit attempts are normally available to students in Years 1 and 2. However, students in Year 1 who pass less than 20 ECTS credits in their first attempt, will normally be instructed to terminate their studies and withdraw from the College. In Years 3 (and 4), only one resit attempt will be permitted. In cases where a student has not achieved the required amount of credit and no further resit attempts are permitted, the Board will graduate the student with an appropriate exit award, as detailed in the programme specifications and regulations.

**Students who have not achieved the required Passes by the beginning of the new academic year are required by College to spend a year out of attendance. During this time they are not considered College students. This may create a number of issues and hold visa implications.**

Students who are required to take a year out due to failed examinations or who take an interruption are not normally permitted to resubmit any coursework previously submitted during their year out.

**Compensation allowances**

In Years 1 and 2 compensation will normally only be applied after a re-assessment attempt. In Years 3 and 4 it may be applied after a first attempt. All compensation decisions are at the discretion of the Board of Examiners.

In Year 1 the Board of Examiners may apply compensation in non-core modules up to a value of 5 ECTS (except for the Degree coding G1F3 where no compensation is allowed).

In Year 2, for all three year programmes, the Board of Examiners may apply compensation in elective modules up to a value of 10 ECTS. For students on the G103 or G104 four year programmes, the Board of Examiners may apply compensation in elective modules up to a value of 5 ECTS.

In Year 3:

- Students on three year programmes: the Board of Examiners may apply compensation in elective modules up to a value of 15 ECTS with a maximum of 10 marks (percentage) compensated in each module.
- Students on the G103: the Board of Examiners may apply compensation in elective modules up to a value of 7.5 ECTS and a maximum of 10 marks (percentage) compensated in each module.
- Students on the G104 are abroad and must comply with Year Abroad regulations; the year abroad cannot be compensated.

In Year 4 (for G103 and G104), the Board of Examiners may apply compensation in elective modules up to a value of 15 ECTS and a maximum of 10 marks (percentage) compensated in each module.

**Marks, Year Totals and Year Weightings**

The raw marks from each assessment will be weighted and combined to produce a raw module mark; the raw module mark will then be converted to a 0-100 scale.

Due to the nature of Mathematics as an academic discipline it is often necessary for module marks to be scaled in order to ensure comparability across modules and so that they map appropriately onto the undergraduate degree classification system. In accordance with the [Regulations for Taught Programmes of Study](#), this process is applied consistently to all students in the cohort and reported to External Examiners and the Board of Examiners.

The Department uses the following procedures for calculating module marks:

If the module has assessed coursework/progress tests then the marks for these are combined with the total mark for the paper in the appropriate proportions to produce a raw mark for the module. For modules assessed solely by project or assignments, the assessments are added together as announced to students.

The marks for each module are then re-scaled in a piecewise-linear fashion according to the following procedure.

Based on students’ performances in the module assessments and performances in the module relative to average performance in other modules, the module examiners make a decision about what they consider to be the pass / fail boundary (P), the 2(i)/ 2(ii) Boundary (T), the 2(i)/ 1st Boundary (E) and the maximum mark (M) which was realistically possible for the module. In the case of Year 1, 2 and 3 modules, the raw marks P, T, E and M are mapped to 40, 60, 70 and 100 respectively (with 0 being mapped to 0). These choices of grade boundaries (PTEM) are compared by a sub-Board of the Board of Examiners (the Liaison Panel) and further adjustments are made to ensure comparability of marks across modules. Once the values of the grade boundaries for a module have been finalised, an individual raw mark is then mapped to the 0–100 scale by linear interpolation and this becomes the student’s mark for that module.

For Year 4 modules where the pass mark is 50, the process is the same except that P is mapped to 50.

The agreed mark for each module will be used to calculate year marks and final classifications using a weighted average.

In order to be considered for an award, you must have achieved the minimum number of credits at the required levels prescribed for that award and met any programme specific requirements as set out in the Programme Specification.

Candidates who do not meet the specific requirements for specialist degree codings may be transferred to, or be graduated with another BSc Mathematics coding (including G100) for which the requirements have been met.
Your classification will be determined through:

i) Aggregate Module marks for all modules

ii) Year Weightings

Year weightings by Degree Programme:

Three Year Programmes (G100, G1F3, G1G3, G1GH, G102, G125, GG31): Year 1 is weighted at 7.5%, Year 2 at 35% and Year 3 at 57.5%.

G103: Year 1 is weighted at: 7.5%, Year 2 is weighted at: 20%, Year 3 is weighted at: 36.25%, Year 4 is weighted at: 36.25%

G104: Year 1 is weighted at: 7.5%, Year 2 is weighted at: 25%, Year 3 is weighted at: 25%, Year 4 is weighted at: 42.5%

In a case where a student has accumulated more than 60 ECTS in year 3, weighting will applied to the modules taken; please see more information in the Programme Specifications.

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

i) First 70% or above for the average weighted module results

ii) Upper Second 60% or above for the average weighted module results

iii) Lower Second 50% or above for the average weighted module results

iv) Third 40% or above for the average weighted module results

Candidates who fall within 2 percent of the boundary for a higher classification may be considered for promotion to the higher classification based on their overall academic performance. Candidates within 0.5 of a boundary will automatically be promoted to the higher class.

Examination Support
Past Examination Papers and information on examination technique and study support can be found on Blackboard (https://bb.imperial.ac.uk) Maths Central in the Examinations section.

For the new curriculum, a mapping of modules from the old to the new will be available on Maths Central to help students identify questions from past papers which will support with the revision on the new programme.

Note: Until 2016-17, examination papers included a system of 'bonus marks' designed to give extra reward to high-scoring answers. You will see this when you look at past papers. Following a consultation exercise, this practice was discontinued in all years from 2017-18.

Arithmetic Mark Check
If you consider that there may have been an error in the adding up of your marks, you may request an arithmetic mark check. Please note that this must be requested within 10 working days of the official notification of your results from the Results team using the procedure below. You may not request a mark check for a previous year of study.

For the Department of Mathematics, your request must be submitted by email to the Undergraduate Office using the official form. The form must be received within the deadline
set by the College and clearly state the mark check required. You must send your email from your Imperial email address. The form is available on Blackboard Maths Central.

Information on post examination appeals procedures can be viewed on http://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/appeals/

Mitigating Circumstances

Sometimes during your studies you may be affected by sudden or unforeseen circumstances. You should always contact your personal tutor for advice and support. If this happens at the time of, or immediately preceding your assessments you may be able to make a claim for mitigating circumstances. If successful this claim enables the Board of Examiners when reviewing your marks at the end of the year to have greater discretion with regards to offering repeat attempts (either capped or uncapped), a repeat year, or with your progression or final classification. Please note, the Board are not permitted to amend the marks that you were awarded.

All claims must be supported by independent evidence and submitted within 10 working days of the assessment deadline. Any claim made after this deadline is likely to be rejected unless there is a good reason (such as you were still unwell) until the point of submitting the claim. Further information can be found at https://www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/mitigating-circumstances/.

Through the procedure you may also be able to request an extension to the deadline to some forms of assessment. This procedure should be used where possible to enable students to complete their studies within the normal College year, rather than outside the teaching session.

Allowance is normally considered only in cases of serious illness (not odd bouts of flu), close family bereavements, serious family problems etc. Even when mitigating circumstances are accepted there is no guarantee that the Examination Board will make any allowance for them.

Please use the form to report all major mitigating circumstances during your time in the Department of Mathematics. Use extra sheets if necessary and please include relevant dates.

Support for ongoing or long-term conditions, or for registered disabilities would not normally fall under the remit of mitigating circumstances and students should be supported through their studies with Additional Examination Arrangements. More details can be found at www.imperial.ac.uk/disability-advisory-service/support/exams/

If you have a long-term condition that you are unable to gain support through additional examination arrangements, please speak with the Undergraduate Senior Tutor about any other possible support, and if none, how and when to submit Mitigating Circumstances. You would be expected to submit for each year you have been affected.

Examination Absences

If, for medical or other reasons, you are absent for an examination you must:
• inform the Undergraduate Senior Tutor by email or phone the Undergraduate Liaison Officer on the day of the missed examination

• complete a Mitigating Circumstances form and return it to the Undergraduate Office within 5 days of the event

**Note:** If any allowance is to be made then documentary evidence to support your case will be needed. In the case of illness your doctor needs to see you the same day (or as soon as possible, while you are still ill). If it is impossible for you to gain evidence, you must complete a self-certification form and indicate clearly why you were unable to gain evidence. Please note restrictions on the Self-Certification form. The form can be found inside the Undergraduate Office and online on Blackboard Maths Central.

If your case is accepted by the Mitigating Circumstances Board, they will refer this to the Examination Board, and a recommendation is made as to the missed exam (capped or uncapped attempt at next sitting). If your case is not accepted by the Mitigating Circumstances Board, an attempt is normally considered to have been made and a later attempt is regarded as a resit, which is for Pass credit only.

A Mitigating Circumstances form must also be completed if circumstances prohibit you from completing a major piece of assessed work, such as the Year 1 and 2 projects.

**Examination Withdrawals**

You may only withdraw from an examination with the permission of the Undergraduate Senior Tutor. Otherwise, a score of zero will be recorded and the resit paper will be capped at the pass mark.

**Academic Misconduct Policy and Procedures**

It is important that you learn how to properly attribute and acknowledge the work, data and ideas of others. Any proven form of academic misconduct is subject to penalties as outlined in the College’s Misconduct Policy and Procedures.

[www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/)

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 may be intentional, by deliberately trying to use another person’s work by disguising it or not citing the source, or unintentional where citation and/or referencing is incorrect.

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. You can support your understanding of proper referencing and citation by using the resources available from the College such as the Library learning support webpages at:

[www.imperial.ac.uk/admin-services/library/learning-support/plagiarism-awareness/](http://www.imperial.ac.uk/admin-services/library/learning-support/plagiarism-awareness/)
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.

You should note that whilst the College encourages students to support each other in their studies you should be careful to ensure that you do not exceed the assessment brief with regards to individual work, always acknowledge the contributions of others in your work, and do not leave yourself open to allegations that you have supplied answers to enable another student to commit academic misconduct.

**Exam offences**
Exam offences fall into two main areas. This may be an attempt to gain academic advantage (cheating) or acting in a way that is potentially disruptive to others in the same venue (sometimes referred to as a technical offence). Examples of cheating can include behaviour such as bringing unauthorised material into an exam, attempting to communicate with others apart from the invigilator, using an unauthorised electronic device, trying to remove examination material without permission, taking an exam for someone else or getting someone else to take an exam for you. Examples of being potentially disruptive includes having an electronic device that has not been fully turned off or failing to follow a reasonable instruction of the invigilators.

**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 or a claim for mitigating circumstances.

**From the Department:**
Academics trade in original thought and insight. They take great pride in crediting others by meticulously quoting and referencing all sources and aim to instil the same appreciation and respect for academic work and original thought in their students. To credit others is a matter of academic integrity.

All the assessed work and projects that you submit count towards your degree. They are therefore part of the examination process and governed by its rules. Violation of these rules counts as plagiarism and is regarded as an examination offence:

- if you have worked with or consulted other people on assessed work or a project you must acknowledge their input
- if you copy text or diagrams from a book or a journal or the internet or another person this must be acknowledged in the text and there must be a corresponding reference in the bibliography
- assessed work and projects must be your own unaided work
- each piece of work must be accompanied by a signed declaration, ‘This is my own unaided work unless stated otherwise’, or the statement must be accepted when uploading work electronically.
Plagiarism is taken very seriously in the Department of Mathematics and various means are available for detecting it. Appropriate punishments can be severe. If plagiarism is suspected, you will be interviewed by the Undergraduate Senior Tutor and a relevant staff member. If the plagiarism is deemed minor, punishment will be imposed by the Department of Mathematics. Plagiarism deemed major will be referred to the College Registry. This can result in students losing their entire degree.

The source and recipient are normally treated equally – which means that if you share your work, you will be liable for the same punishments as the student who copies your work. Students who share their work are often strong students and thus the punishments can hurt them much more than if already at the bottom of the year group. Thus do NOT pass on your solutions/your code to other people as even though they may say they will not copy, you have already given your work to them, allowing for the possibility.

The severity of plagiarism is judged on the basis of the extent of plagiarism in the piece of academic work concerned; it is not judged on the basis of the weight of that piece in the overall degree. For example, a single sentence copied from an online source without appropriate citation may be deemed minor and penalised with a loss of mark. A typical punishment is the loss of all marks in the academic piece.

By comparison, a major case of plagiarism would involve, for example, significant collaboration without acknowledgement in a single piece of assessed work.

If deemed major, the typical punishment for plagiarism is the loss of all marks in all written work for the entire year. This includes all exams, whether they have already taken place or not. In these cases, a resit for Pass credit only is normally available. Cases of major plagiarism in the Final Year normally lead to a severe reduction of the degree classification.

In addition, a letter is normally placed in the student's file, which will adversely influence any letters of reference. Students who have committed major plagiarism therefore often find it difficult to pursue their academic careers. Major plagiarism could also result in expulsion from College.

Plagiarism/cheating often takes place when students are stressed/struggling with the work. If this is the case, please make sure that you reach out for support from your lecturer/Personal Tutor/Undergraduate Liaison Officer before you copy someone else’s work and get into trouble. It is better to get a lower mark than to copy someone else’s work.

If you are unsure about what plagiarism is, or how to properly cite your sources, please speak to the Mathematics Librarian or the Undergraduate Senior Tutor. Note that these rules on plagiarism apply to all modules, including Horizons and i-Explore modules, regardless of whether or not they are being taken for credit.
4. **Board of Examiners**

**Board of Examiners**

The Board of Examiners for the Department consists of all of the Lecturers teaching in said year, the Year Tutors, Undergraduate Senior Tutor, Director of Undergraduate Studies, Deputy Heads and Head of Department.

**External Examiners**

(confirmed for 2019-2020 as of start of September 2019)

- Professor Peter Giesl, University of Sussex
- Professor Gareth Alexander, University of Warwick
- Dr Emilian Parau, University of East Anglia
- Professor Christopher Jennison, University of Bath
- Professor Mark Kambites, University of Manchester

External examining acts as an essential part of the College’s quality assurance and enhancement process, serving to ensure that academic standards are maintained. The knowledgeable and independent views of external examiners are invaluable in certifying that the College’s awards are appropriate and comparable as well as highlighting good practice and potential areas of enhancement.

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/about/governance/academic-governance/academic-policy/external-examining/
5. **G104 Programme**

Co-ordinator for European Exchanges Dr R. Nurnberg: robert.nurnberg@imperial.ac.uk
Co-ordinator for MIT Exchanges Dr Sheehan Olver: s.olver@imperial.ac.uk.

There is an increasing demand for graduates with international experience. Employers are increasingly interested in graduates with language skills and these are essential for graduates wishing to work abroad.

G104 Mathematics with a Year Abroad is a four-year Honours degree programme leading to an MSci qualification. Three years are spent in the Department of Mathematics at Imperial College and one year (the Third Year) at a host institution abroad.

Current Host Institutions for the Year Abroad

- ENSIMAG Grenoble, France
- ENS Lyon, France
- EPFL Lausanne, Switzerland
- Humboldt Berlin, Germany
- ETH Zurich, Switzerland
- UAM Madrid, Spain
- MIT, Cambridge, MA, USA

For students going to host institutions in Europe: Suitable arrangements will be anticipated for the year away when a student is first accepted onto the course and more detailed planning will take place at the completion of the First Year programme. Every effort will be made to send a student to their country of choice but a particular host institution cannot be guaranteed.

Selection of students for MIT is competitive and takes place early in the second term of the second year of study. Places are limited and due to this mark requirements for application are high. Please note that the MIT exchange is currently in pilot phase and under review.

**Course Structure**

There is no formal language requirement our Year Abroad degree, however applicants may be required to demonstrate a basic competence in a required language if going to one of our European partner universities.

These requirements are different to entry requirements, as you will often have the opportunity to work towards the necessary criteria in your time at university, up to the third year of this course.

As a guide a basic competency would equate to:

- A level Grade C
- AS Level Grade B
- GCSE Grade A
First and Second Years

G104 students follow the same mathematics modules as all other students, but normally take language classes in addition to the mathematics modules.

Students who are especially well prepared in the language for their proposed year of study away may exceptionally have the language module requirements waived. Students are required to register for their language module themselves.

Further information on the free language modules available at Imperial College London for G104 Mathematics with a Year Abroad students, and any pre-requisites which may be required, can be found online at:

www.imperial.ac.uk/languages/year-in-europe/

Note: Whilst G104 students must pass the language examinations at the end of First and Second Year in order to stay on G104, language examination results do not directly contribute to their mathematics degree Honours mark. Students may choose the language module to count as the required I-Explore module in the Second Year, or may choose to take an extra I-Explore module.

Third Year (Spent at a Host Institution)

Students will follow an approved set of modules at the host institution, where they will also be assessed. On their return, the achieved exam results will be converted to the Imperial scale. Details on the applied conversion procedure can be found on the Maths Central Blackboard page under Course Information, G104 information.

Fourth Year

Students will have a free choice of core modules and options from the list currently available - on the same basis as students registered on the MSci G103 Mathematics degree.

Pass Requirement and Assessment for Honours

In order to progress to the next level of study, students on the G104 programme must have passed all modules (equivalent to 60 ECTS) in the current level of study at first attempt, at resit or by a compensated pass.

In order for you to progress to the next year of the programme, the overall aggregate mark for the year, including where a module(s) has been compensated, must normally be as follows:

year 1: 40 percent

year 2: 60 percent

Satisfactory completion of a language requirement (Level 3 or above, as determined by the College’s Centre of Languages, Culture and Communication) will normally be required for students spending their year abroad in a non-English speaking country. This will include in most cases, students being required to take and pass language modules at the College’s Centre for Languages, Culture and Communication (or its equivalent elsewhere) in Years 1 and 2. Language modules taken do not count for Honours degree classification and are instead for pass/fail credit.
A student who is not permitted to remain on G104 for year 3 will be transferred to a BSc or MSci Mathematics degree.

Honours Degree classification:

Students who satisfy the degree requirements receive consideration for Honours in the normal way: First Class, Second Class (Upper and Lower Divisions).

Aggregate marks from each year will be combined with the following percentage weightings to produce an overall aggregate mark:

G104: Year 1 is weighted at: 7.5%, Year 2 is weighted at: 25%, Year 3 is weighted at: 25%, Year 4 is weighted at: 42.5%

Transfer between G104 and Other Degrees

Students who do not perform well at Second Year may be unable to spend their Third Year overseas and may be transferred to BSc G100 Mathematics.

Students who perform very poorly in their year away may be transferred onto the G100 degree and take Third Year subjects in their Final Year. This is a departmental decision – students may not choose this path.

Students who choose to transfer from MSci G104 Mathematics to a three year BSc degree will only be allowed to do so with the permission of the Department. This permission is not normally possible after undertaking study abroad.

Students on a BSc degree may be able to transfer into the MSci G104 Mathematics degree to go to Europe if they can satisfy the Department of their language skills and have good examination results. Normally such transfers will be considered at the end of the First Year of study. Students should make their interest known as early as possible. Transfer to the MIT Year Abroad programme is through selection only.
6. 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
South Kensington Campus, Imperial College London, Sw8 2AX

Facilities

Huxley Building Guide

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<th>Lecture Theatres/Classrooms:</th>
<th>Locker:</th>
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<td>130, 139, 140, 144, 145</td>
<td>Please see the Technical Services Manager (131) if you require a locker</td>
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<th>Level 2</th>
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<th>Level 3</th>
<th>Lecture Theatres/Classrooms:</th>
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<td>308, 311, 340, 341, 342</td>
<td>212. This room has space for relaxation, work stations, a photocopier/scanner/printer, a microwave and a water unit.</td>
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<th>Lecture Theatres/Classrooms:</th>
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<th>Level 6</th>
<th>Undergraduate Office:</th>
<th>Undergraduate Senior Tutor’s Office:</th>
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<tr>
<td></td>
<td>649 (open Monday to Friday 9.30am-4.30pm)</td>
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<tr>
<th>Level 6</th>
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<th>Undergraduate Liaison Officer’s Office:</th>
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<th>Level 6</th>
<th>Student Experience Coordinator’s Office:</th>
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Central Office: 649a
Academic Staff Offices
Staff Post Racks: 655a
Student Post Racks: 212
Submission of Assessed Work Pigeonholes: Opposite the Undergraduate Office (649)
Collection of Marked Work Pigeonholes: 649

Level 6M
Academic Staff Offices

Level 7
Academic Staff Offices

*Any letters or documents issued by the Department of Mathematics, which aren’t being posted or emailed, can only be collected from the Undergraduate Office. Picture ID and signature are required upon collection.

All lecture rooms will have a QR code outside them which can be scanned to see whether the room is reserved or not. If free, students are welcome to use them for study until they need to be vacated for the next reserved session. Please note that sometimes reservations will come in very late.

Facilities

Mathematics Learning Centre (MLC)
The Mathematics Learning Centre (level 4, Huxley Building) is a major space within the Department for individual and group study. Departmental computing workstations and printers and copiers are available for students to use. There are three side rooms in the MLC: MLC1, MLC2 and MLC3 (called 414A, 414B and 414C on your electronic calendars) which can be booked out and used for small group tutorials, careers sessions, Seminars, etc.

The MLC is at times used for teaching, and students are required to vacate the computer stations required for these sessions. During tests/exams for the modules, students may be asked to leave the MLC.

Other Computing Rooms
Departmental workstations are located in the Huxley Building in rooms 212, 408, 409 (for Fourth Year students only), 410 and the Maths Learning Centre (level 4, Huxley Building). 410 is designated as a silent study area. 408 and 410 are at times used for teaching purposes.

Maths Common Room (Huxley 212)
Huxley 212, next to the Clore, is a computing/common room for all Mathematics Undergraduate Students. Students may use the room for socialising, working together,
having lunch, playing board games, etc. Notices from MathSoc and the Year Reps will be posted in this room.

Students are reminded to be courteous to each other while using all of the rooms and are asked to not leave their personal possessions in the rooms while not in them.

**Student Post**
There are student post racks for ‘regular’ post only in the Maths Common Room, 212. These racks are cleared at the end of each academic year; please make sure you check the racks for any letters you may be expecting.

Any letters or documents issued by the Department of Mathematics, which aren’t being posted or emailed, can only be collected from the Undergraduate Office. Photo ID and signature are required upon collection.

**Lockers**
Student lockers are situated on level 1 in the Huxley Building. Please see the Technical Services Manager (room 131, Huxley Building) if you require a locker.

At the start of the academic year, students should put a padlock on their chosen locker and then register their locker by completing a form found outside room 131. At the end of the academic year, students are required to remove their locks and empty their lockers. If this is not done, locks will be cut off and the locker contents will be disposed of.

**Printing Credit**
At the start of the academic year, the Department will provide Undergraduate students with £25 printing credit.

If you find that you need more credit, please see information on how to add more on: [https://www.imperial.ac.uk/admin-services/ict/self-service/computers-printing/printing-photocopying-and-scanning/buy-credit/](https://www.imperial.ac.uk/admin-services/ict/self-service/computers-printing/printing-photocopying-and-scanning/buy-credit/)

If you experience any problems with the Department issued printing credit, please contact ICT.

**Letters**
Students should contact the Student Hub and Registry for any official letters, for example

- Statement of Attendance letter
- Transcripts
- Confirmation of Degree Letter
- Visa letters/CAS
- Letter to open a bank account
- Council Tax exemption certificates


If you require some other type of letter, please ask at the Undergraduate Office. Official transcripts can only be requested from Registry through the Student Hub.
To request a letter, students must complete an Undergraduate Letter Request form. These can be found online on Blackboard Maths Central (https://bb.imperial.ac.uk) under General Information or inside the Undergraduate Office.

References

The Department of Mathematics is able to provide references for students.

- all references must be for a specifically named postgraduate course or job; the Department is not prepared to write open references
- each member of staff may only provide you with up to five references per academic year
- you must provide a statement explaining why you are applying for the courses or posts listed and attach a current CV and any relevant referee forms to your application
- references can take up to three weeks to prepare so please plan ahead; references cannot be provided at very short notice
- referees may ask to see you before they provide a reference
- if you are applying to a number of postgraduate programmes, if possible, please try to ask for all references at the same time
- if your reference is being posted, you will receive an email (to your university email address if you are a current student) informing you when it has been sent. References will be posted 2nd class
- if your reference is for collection, you will receive an email (to your university email address if you are a current student) informing you of your reference's availability and from where and when it can be collected
- if you want someone else to collect your reference(s) for you, you must send the Undergraduate Office (maths-student-office@imperial.ac.uk) an email from your university email account authorising the release of your reference(s) to the person named. The person collecting your reference(s) must bring their own picture ID with them for identification purposes

The person you ask to be your referee should be someone who knows you well enough to give a fair assessment of you. Normally your Personal Tutor will be the main person to write references for you but you may also approach a Project Supervisor or your Year Tutor. The Undergraduate Senior Tutor may also be approached.

Remember that we cannot respond to direct requests for references from third parties; we can only provide a reference for you if you make the initial request.

Please talk to your Personal Tutor for any help with questions, or contact the Undergraduate Liaison Officer.

The Reference Request Form can be printed from the Maths Central pages on Blackboard (https://bb.imperial.ac.uk) under General Information.

Panopto Lecture Recordings

The Department may record lectures using the Panopto lecture recording system.
The lecture recordings are in place in order to support students’ learning. Students are encouraged to use the recordings to review material they did not understand in lecture, to aid in revision prior to examinations, or to cover material when absent due to illness/other serious personal issue. The lecture recordings are not to replace actual attendance at lectures, and the Department expects students to attend all lectures.

Students should understand that due to unforeseen circumstances, there may be times when the technology fails. If students have missed a lecture that has failed to record, they are responsible to gain the missed material themselves from a colleague.

Students can access recorded lectures through the Panopto site on the Imperial College website: https://imperial.cloud.panopto.eu/Panopto/Pages/Default.aspx Students will automatically be given access to all compulsory modules that are being recorded for their year group, but some optional modules may require special permissions.

More information about Panopto and the College’s guidelines on recordings can be viewed here:


Mathematics Education Technology – Research at Imperial College (METRIC)

The METRIC project develops a set of online modules consisting of self-test exercises, interactive explorations of concepts and mathematical tools.

All First Year Mathematics Undergraduates are encouraged to log on to METRIC over the summer to spend some time preparing prior to the first week; the resources are widely used by other Departments. METRIC also supports delivery of the College’s Mathematics outreach activities, via masterclasses, summer schools and training for teachers.

Lead contact (Dr P.J. Ramsden): p.ramsden@imperial.ac.uk

Further information about METRIC can be viewed online at: https://imperial.mapleserver.com/imperial/
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 300,000 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

Key Library Staff for the Department of Mathematics:

- Liaison Librarian (Ms A. Brew): ann.brew@imperial.ac.uk

Ann Brew can support students with research skills and referencing. You can book individual appointments with her and she also runs workshops in the department at key points in the year.

Shuttle bus

A free shuttle bus runs between our South Kensington, White City and Hammersmith Campuses on weekdays. Seats are available on a first-come, first-served basis. You need to show your College ID card to board. Download the timetable at:

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 AccessAble access guides:

www.accessable.co.uk/organisations/imperial-college-london

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
SafeZone

SafeZone is the College’s new app through which you can quickly and directly contact the Security team whenever you need them. In an emergency situation, whether you’re in need of First Aid or want to report an incident on campus, SafeZone allows you to be immediately put in touch with a member of our Security team and, at the touch of a button, can share your location and personal profile so that they can respond quickly and effectively to your specific needs. It also allows the entire College community to stay informed in the event of a major incident in London or wherever you may be in the world. SafeZone also provides information on other services, such as real-time updates on the College shuttle bus.

SafeZone is optional to register to and is now available to download on the Apple and Android App stores.

All existing phone numbers for the Security team are still operational. In the event of an emergency, you can still call 4444 from any internal College phone. In the event of a wider incident in London, you can now also call 0300 131 4444, Imperial’s Emergency Recorded Message Line, which will point you in the direction of up-to-date information and advice.
7. 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 Personal 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.
8. 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 Policy can be found at:


Your Departmental safety contact is:

- Andy Pope
- Huxley 131
- 020 7594 8544 (internal: 48544)
- a.pope@imperial.ac.uk

You will be required to complete inductions and attend training sessions to safely complete this course. This includes:

- Safety Induction for all new students – Tuesday 1st October 2019

The current First Aid contacts in the Department are on Blackboard Maths Central ([https://bb.imperial.ac.uk](https://bb.imperial.ac.uk)) in General Information section.

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:

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www.imperial.ac.uk/safety
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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.

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www.imperial.ac.uk/occupational-health
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9. 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

Unsatisfactory Progress
Unfortunately sometimes students struggle to make satisfactory progress in their study or their engagement with their studies falls below our expectations. The College has a process to identify and support students by reaffirming these expectations with an action plan. The full details of this process, and the appeals procedure relating to it can be found at:

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

Academic Appeal Procedure
We have rigorous regulations in place to ensure assessments are conducted with fairness and consistency, claims for mitigating circumstances have been considered reasonably and in line with the regulations of the College, and that the decisions of the Boards of Examiners maintain the integrity of our academic awards. In the event that you believe that you have grounds to appeal these decisions, we have laid out clear and consistent procedures through which appeals can be investigated and considered:

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

Student Complaints
The College strives to ensure that all students are well supported in their studies and receive a good experience of their programme and the wider College activities. If you feel that your experience has not lived up to these expectations the College has an agreed Students Complaints process through which your concern 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:

https://www.imperial.ac.uk/research-and-innovation/research-office/ip/

Use of IT Facilities
View the Conditions of Use of IT Facilities:

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

General Data Protection Regulation (GDPR)
All staff and students who work with personal data are responsible for complying with GDPR. The College will provide support and guidance but you do have a personal responsibility to comply.

In line with the above please see the College’s privacy notice for students which form part of the terms and conditions of registration with the College.

www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/academic-policy/admissions/Privacy-notice.pdf
10. Wellbeing, support and advice

In your department

The Mathematics 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 Tutor

Your Personal Tutor is your first point of contact for pastoral support and advice. You can arrange to have a meeting with them at any time during your studies (although most Personal Tutors will have set office hours or may require you to make an appointment).

First Year students are expected to meet with their Personal Tutors on a weekly basis at their personal tutorial sessions; however, students should not feel that these are the only times they can meet with their Personal Tutor if they have any academic or personal concerns they would like to discuss.

Most First Year modules designate a problem sheet question specifically for discussion with your Personal Tutor at these weekly meetings and it is in these meetings that marked First Year assessed tests will be returned. Not every tutorial group will be the same; your Personal Tutor meetings will run around your groups’ needs as well as any direction your Personal Tutor may give. Your Personal Tutor or other tutees may bring in other questions than the ones from your problem sheets, or spend time looking at one specific question in more detail. They may also discuss with you study skills or time management or talk about life in academia and research options in maths in more general. If you have a specific question or problem you would like the session to concentrate on, email your Personal Tutor ahead of time.

In Second, Third and Fourth Years, meetings with Personal Tutors will be less frequent but students should always feel free to contact their Personal Tutor with any issues. During ‘Meet Your Personal Tutor Weeks’, meeting with your Personal Tutor is compulsory.

It is important that Personal Tutors get to know their students well, so they can intervene early if something goes wrong academically or otherwise. Personal Tutors are experienced academics and they can become very important supporters. Ideally, a personal bond develops as students and their Personal Tutors meet on a regular basis and Personal Tutors witness the student’s academic development as they mature intellectually. Keeping Personal Tutors informed about academic and personal development will also enable them to write convincing, supportive references.

If, for whatever reason, students are unhappy with their Personal Tutors, they should notify their Year Tutor or the Undergraduate Liaison Officer.

Year Tutors

Year Tutors provide assistance both to individual students within their year group as well as to issues which might affect the year group as a whole.

Year Tutors should be contacted by individual students if they have an academic or personal issue they would like to discuss and their Personal Tutor is unavailable. They should also be contacted if you have missed an assessed work deadline, or know in advance that you will miss one due to mitigating circumstances.
Undergraduate Senior Tutor

The Undergraduate Senior Tutor is available to help if Personal Tutors or Year Tutors do not feel qualified to advise a student on a particular matter. They also act as an intermediary between the student and the College where the student is experiencing problems.

Undergraduate Liaison Officer

The Undergraduate Liaison Officer works closely with the Director of Undergraduate Studies, the Undergraduate Senior Tutor and Year Tutors. Students will be able to approach the Undergraduate Liaison Officer in confidence to discuss any concerns they may have and, if necessary, they will be directed to the most appropriate people in the Department and/or College with whom to speak.

Student Experience Coordinator

A part of the Student Experience Coordinator’s remit is to work closely with the Undergraduate Wellbeing Reps and other student leaders on student wellbeing and community activities. They also work with the outreach team and may train student leaders for departmental activities.

Mums and Dads scheme

Imperial College Union’s ‘Mums and Dads’ scheme matches first years with returning students in your department to help you tap into their experience and find peer support available from existing students.

www.imperialcollegeunion.org/mums-dads-201920

Departmental Disability Officers

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

Your Departmental Disability Officer is Dr Chris Ford, the Undergraduate Senior Tutor.

More information on Departmental Disability Officers is available at:

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

More information about how to request additional arrangements for exams if you have a disability is available at:

In your hall of residence
If you’re staying in College accommodation you will have access to a range of support within your hall.

All halls have a Hall Warden team who are on call 24/7 to look after your wellbeing and maintain a friendly living environment so that all residents can study, sleep, relax and enjoy themselves.

They also play an important part in the social life of the hall, organising a rolling programme of events to bring everyone together. This is supported by the Hall Activities Fund, which all residents contribute to at a rate of £2 per week.

The team includes returning students, known as Hall Seniors, who can offer first-hand advice about making the most of life at Imperial.

Each hall also has a Hall Supervisor or a Reception team who oversee the day-to-day running of the residence. So, if you have any enquiries or want to report a maintenance issue there are people on hand to help you.

Your Union
All Imperial students automatically become members of Imperial College Union when they register at the College. The Union provides a range of independent support.

Imperial College Union Advice Centre
The Union’s advisers are 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](http://www.imperialcollegeunion.org/advice)

Student representatives
Imperial College Union operates two Representation Networks of over 600 elected student representatives – the Academic Representation Network and the Wellbeing Representation Network. Reps represent the voice of students and can direct you to internal and external support services. The Union’s Liberation Officers also work to make sure that the views of under-represented and interest groups are heard at the College.

If you have any feedback about issues in your department relating to academic or wellbeing issues, you can speak to one of your student representatives.

[www.imperialcollegeunion.org/your-union/your-representatives/a-to-z](http://www.imperialcollegeunion.org/your-union/your-representatives/a-to-z)

Officer Trustees
The Union is led by a team of Officer Trustees who are elected every year by the students of Imperial College. They take a year out of their studies and work full-time at the Union, representing the voices of students in the Union, the College and the wider community.

The Officer Trustees represent students in a variety of roles, including Education, Welfare, Finance & Service and Clubs & Societies. These elected students are here to represent your views as a student body do make sure you get in touch with them if there’s something you would like to discuss or change.
**Student Hub**
At the Student Hub, you can access advice about accommodation, admissions and financial support and get help with international student enquiries, questions about student records, exams and the Undergraduate Research Opportunities Programme (UROP).

- [www.imperial.ac.uk/student-hub](http://www.imperial.ac.uk/student-hub)

**Student Support Zone**
The Student Support Zone has lots of information about the resources available at Imperial and beyond to help you to stay healthy and happy. It’s a great place to start when you’re looking for some support – it covers advice about housing and money, health, wellbeing and maintaining a good work-life balance, and provides the details of who you can contact if you need some extra support.

- [www.imperial.ac.uk/student-support-zone](http://www.imperial.ac.uk/student-support-zone)

**Useful support contacts**

**Health and wellbeing**

Imperial College Health Centre

- 40 Prince’s Gardens, South Kensington Campus
- 020 7584 6301
- [imperialcollege hc@nhs.net](mailto:imperialcollege hc@nhs.net)
- [www.imperialcollegehealthcentre.co.uk](http://www.imperialcollegehealthcentre.co.uk)

Imperial College Dental Centre

- Prince’s Gardens, South Kensington Campus
- 020 7589 6623
- [imperialcollegedental.co.uk](http://imperialcollegedental.co.uk)

Counselling and Mental Health Advice Service

- 020 7594 9637
- [counselling@imperial.ac.uk](mailto:counselling@imperial.ac.uk)
- [www.imperial.ac.uk/counselling](http://www.imperial.ac.uk/counselling)

Multi-Faith Chaplaincy Service

- Chemistry Building, South Kensington Campus
- [chaplaincy@imperial.ac.uk](mailto:chaplaincy@imperial.ac.uk)
- [www.imperial.ac.uk/chaplaincy](http://www.imperial.ac.uk/chaplaincy)
Disability Advisory Service
Room 566, Level 5, Sherfield Building, South Kensington Campus
020 7594 9755
disabilities@imperial.ac.uk
www.imperial.ac.uk/disability-advisory-service

International students’ support
Centre for Academic English
Level 3, Sherfield Building, South Kensington Campus
www.imperial.ac.uk/academic-english

International Student Support team
020 7594 8040
www.imperial.ac.uk/study/international-students

Careers
Careers Service
Level 5, Sherfield Building, South Kensington Campus
020 7594 8024
careers@imperial.ac.uk
www.imperial.ac.uk/careers

The Mathematics Careers Speed Dating Night
In addition to smaller year level information sessions, the Mathematics Careers Speed Dating Night is the main careers event run jointly by the Careers Services and the Department of Mathematics. It is open to all Second, Third and Fourth Year students and takes place one evening in October. Students have the opportunity, in a 'speed dating fashion', to meet with a number of potential employers and alumni to talk about employment opportunities and graduate programmes.

The Departmental Careers Advisor is Dr Shahid Mughal s.mughal@imperial.ac.uk

ICT and software
ICT Service Desk
Central Library, South Kensington Campus
020 7594 9000
www.imperial.ac.uk/ict/service-desk
Software shop
www.imperial.ac.uk/admin-services/ict/shop/software
11. 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
12. Work-life balance

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

Imperial College Union
The Union’s range of 340+ 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

Active Imperial
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

Maths activities outside the Curriculum

The Mathematics Society (MathSoc)
The Mathematics Society (MathSoc) plays an important part in the Department and arranges events for students and staff, including parties, outings, special lectures and careers events. Information is emailed to students and more information can also be found on the MathSoc website: https://www.union.ic.ac.uk/rcsu/mathsoc/

The Undergraduate Colloquium
The Undergraduate Colloquium was initiated by students in 2012-2013 as a weekly lecture series where undergraduate students could present their research (e.g. UROP/projects/other independent research) to other undergraduates and members of the Department. The lectures take place during lunch and are advertised via email and on the Maths Central Pages of Blackboard under Student Life (https://bb.imperial.ac.uk).

PLUS!
PLUS! is an interactive problems group that meets at regular intervals throughout Term 1 and Term 2, usually at lunch time. All students are welcome to turn up and leave as and when they wish. PLUS! problem sheets can be found on the Maths Central Pages of Blackboard under Student Life (https://bb.imperial.ac.uk).
Women in Maths

Women in Maths get-togethers are student led and take place bi-weekly. Many events include talks from academics and alumni in an informal social atmosphere.

Other

Other events such as wellbeing teas and research and inspirational talks by academics take place regularly. Information and invites are sent out by email and posters may be posted around the Department.
13. 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.

Within the Department, Module Lecturers are keen to receive feedback on the pace and content of their modules. This is best done by a question or comment at the time or immediately after the lecture, but in other cases this can be done through Student Year Representatives or the Student Departmental Representative. Third- and fourth-year modules should also have a module representative who can act as a point of contact between students and lecturer. Constructive comments and suggestions should be made in good time, in order to benefit the current year as well as following years.

The Undergraduate Liaison Officer, Undergraduate Senior Tutor and Director of Undergraduate Studies may also be approached to provide feedback on the programme. Please contact the Undergraduate Liaison Officer for any general feedback. Students may also provide anonymous feedback through leaving a letter under either the Undergraduate Liaison Officer’s or Student Experience Coordinator’s office door.

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

The Departmental Representative for Maths for 2019-2020 is Lorenz Wolf
lorenz.wolf17@imperial.ac.uk.

Year Rep information for Mathematics can be found on the Maths Central Pages of Blackboard under Course Information (https://bb.imperial.ac.uk).

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

The Department of Mathematics has an active Staff/Student Committee that normally meets twice in Terms 1 and 2 and once in the summer term. The Committee reviews by academic and wellbeing issues; discussing various academic matters to do with the structure and operational running of the courses, as well as staff/student social interaction and wellbeing initiatives.
Information about the Staff/Student Committee and minutes of meetings can be viewed on
the Maths Central Pages of Blackboard under Course Information (https://bb.imperial.ac.uk).

14. 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:

- UG (Undergraduate) Student Online Evaluation (SOLE) lecture/module survey
- Student Experience Survey (SES)
- National Student Survey (for final year students only)

The UG SOLE lecturer/module survey runs at the end of the autumn, spring and summer
terms. This survey is your chance to tell us about the modules you have attended and the
lecturers who taught them. There are also separate surveys for your BPES and Horizon
modules.

For UG 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 making personal, discriminatory or abusive remarks
as these may cause offence and may be removed from the results. While 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 National Student Survey (NSS) is an annual survey of final year undergraduates at UK
Higher and Further Education Institutions which runs in the spring term. It was first run in
2005 and is carried out by Ipsos Mori, commissioned by the Higher Education Funding

When you are in the final year of your programme, you will be invited to take part in the
National Students Survey (NSS). NSS asks all final year undergraduates to rate a range of
elements related to their student experience such as, academic support, learning resources
and assessment and feedback. The nationwide survey compiles year on year comparative
data for higher education institutions, with its results being made publicly available.

For Imperial's results visit the Unistats website:

unistats.direct.gov.uk/Institutions/Details/10003270

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.

The Mathematics Department compiles responses to UG SOLE from Module Lecturers and
sends these out to students. These are also available on Blackboard Maths Central in
General Information section, UG Online Evaluation Survey (SOLE)
(https://bb.imperial.ac.uk).
The Union’s response to surveys can be found here:

www.imperialcollegeunion.org/your-union/your-representatives/responses

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/ug-student-surveys/

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

surveys.registrysupport@imperial.ac.uk

15. And finally

Prizes
Each year prizes, both from the Department of Mathematics and external bodies, are awarded for good examination performances and outstanding projects. The Department also nominates students for College and prestigious national awards, in which they are often successful. More information on Prizes can be found on Maths Central.

A reception for award winners is usually held on Commemoration (Graduation) Day.

Graduation
Information about Commemoration (Graduation) ceremonies can be found online at:

http://www.imperial.ac.uk/graduation/

Upon graduation, Department of Mathematics graduates are eligible for associateship of the Royal College of Science (ARCS): http://www.rcsa.org.uk/ and membership of the Institute of Mathematics and its Applications (IMA): http://www.ima.org.uk/.

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 Wifi, 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 your mathematics degree, you may choose to continue your studies at the Masters or PhD level or enter the graduate job market. Previous graduates have gone on to graduate level study across the UK and abroad, and entered a variety of fields of industry. You can read more about places our graduates go on the Careers Service website:

http://www.imperial.ac.uk/careers/exploring-your-options/destinations/undergraduates/

Postgraduate Courses and Research in Mathematics

Postgraduate work in mathematics is divided between advanced courses, which normally extend over about one year and lead to the degree of MSc, and research studies that normally extend over a period of up to about three years and lead either to the degree of MPhil or more usually to that of PhD. An important aspect of the structure of the Department is that it consists of several sections: Applied Mathematics and Mathematical Physics, Pure Mathematics, Statistics, Mathematics and Finance. The sections have their own thriving research activities and also give a valuable framework for teaching activities at all levels.

The Department offers the following postgraduate courses and research programmes:

Taught Masters programmes (MSc):

- Applied Mathematics (Programme Director: Dr O. Schnitzer)
- Pure Mathematics (Programme Director: Professor A. Skorobogatov)
- Statistics (Programme Director: Dr M. Evangelou)
- Mathematics and Finance (Programme Director: Dr A. Jacquier & Dr M. Pakkanen)

MRes/PhD programme:


Centres for Doctoral Training (CDT) which offer MRes/PhDs:

- CDT in the Mathematics of Planet Earth (Contact: Professor D. Crisan)
- CDT in London School of Geometry and Number Theory (Contact: Professor A. Corti)
- CDT in Fluid Dynamics across Scales (Contact: Professor P. Schmid)
- CDT in Financial Computing & Analytics (Contact: Dr M. Pakkanen)
- CDT in Mathematics of Random Systems (Contact: Dr T. Cass)
- CDT in Modern Statistics and Machine Learning (Contact Professor A. Gandy)
PhDs:
Dr Ryan Barnett – Postgraduate Director
Professor Anatoly Ruban – PG Tutor (Welfare)

Section PGR Tutor:
- Professor Nick Jones (Applied)
- Professor Boguslaw Zegarlinski (Pure)
- Professor Nick Heard (Stats)
- Professor Harry Zheng (Mathematical Finance)

Further information on post graduate study can be found online at:
http://www.imperial.ac.uk/mathematics/postgraduate/