Programme Information		
Programme Title	Programme Code	HECoS Code
Mathematics with a Year Abroad	G104	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MSci*	4 years	Full time	Annually in October	240	480
* Students unable to complete the requirements for the full award will be transferred to a suitable BSc Mathematics programme and may exit with BSc/Cert. HE/Dip. HE. Transfer must usually take place prior to the year abroad.					

Ownership			
Awarding Institution	Imperial College London	Faculty	Natural Sciences
Teaching Institution	Imperial College London	Department	Mathematics
Associateship	Royal College of Science	Main Location(s) of Study	South Kensington Campus
External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points		Mathematics, Statistics and Operations Research	
FHEQ Level		Level 7 - Masters	
EHEA Level		2nd cycle	
External Accreditor(s) (if applicable)			
External Accreditor 1:	N/A		
Accreditation received:	N/A	Accreditation renewal:	N/A
Collaborative Provision			
Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
N/A	N/A	N/A	N/A
Specification Details			
Programme Lead		Dr. Christopher Hallsworth	

Student cohorts covered by specification	2022-23 entry
Date of introduction of programme	October 2019
Date of programme specification/revision	October 2022

Programme Overview

The MSci Mathematics with a Year Abroad Degree programme at Imperial College London aims to present a wide range of mathematical ideas in a way which enables you to develop your critical and intellectual abilities. It offers you the chance to spend your third year studying abroad at a leading university, challenging yourself in a different academic and cultural environment. You will normally be taught in the language of the host country. Where that is not English, free language classes are available at the College to help you prepare and reach the required level for the study abroad programme. As a student on this programme, you will need to consider the costs of study abroad (see under additional programme costs).

The programme encourages enthusiasm for the subject as a living discipline that is of value both in its own right and in its applications. It aims to provide a good knowledge of a broad range of topics in mathematics and to allow you to acquire a more advanced knowledge of selected parts of the subject. You will have the opportunity to develop an appreciation of topics which lead into current research in Mathematics and applications of Mathematics. A key feature of the final year is an individual project which allows you to explore a research-level topic or area in Mathematics in considerable depth.

All of the modules in year 1 and around half of the modules in year 2 are core or compulsory. These provide a solid foundation in fundamental mathematical topics and their applications. In the second year, you will also take a number of elective modules and can either choose to specialise, or sample a broad range of topics. During the 3rd and 4th year of the programme students choose from a large selection of modules available at one of our partner institutions and here at Imperial. These range across a very wide range of areas of Mathematics and its applications. In year 2 you may also take a limited number of modules delivered outside the department.

Teaching of Mathematics modules in years 1, 2 and 4 takes place at the College's South Kensington Campus. Studying at a research intensive institution, you will learn from specialists in their subject areas. Most teaching sessions are delivered by staff from the Department of Mathematics. These are predominantly permanent faculty who are actively engaged in research, but also include teaching fellows and research associates. Problem classes are supported by Graduate Teaching Assistants.

Our programme is designed to develop personal attributes that employers value, including effective time management and resilience, good interpersonal, leadership, computational, analytical and problem solving skills, as well as developing independent research skills and your verbal and written presentation skills. You will have the opportunity to develop mathematical and communication skills that will be useful in scientific or other jobs.

Mathematics graduates join various employment sectors in technical and managerial roles. The programme also provides an excellent foundation for postgraduate study, enabling you to progress to specialised Master's and PhD programmes, and then to carry on to pursue careers in academic research.

Learning Outcomes

Students who have fulfilled all the requirements of the programme will be awarded an MSci **Mathematics (Honours)** degree. On successful completion of the programme, you will 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;
- 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;
- demonstrate in-depth understanding of an area of mathematics through advanced guided study as well as independent research;
- assimilate advanced knowledge to produce a clearly defined written project;
- communicate mathematical understanding of complex topics concisely and accurately to both specialist and non-specialist audiences;
- choose to take up opportunities to engage in teaching others and share their own mathematical ability and understanding;
- demonstrate strong self-efficacy and a deeper understanding of their own learning journey through the completion of advanced material;
- appreciate the outlook and learning/working practices in a partner university in another country.

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: www.imperial.ac.uk/students/academic-support/graduate-attributes

Entry Requirements	
Academic Requirement	A-levels: Normally a minimum **A*A*A** overall **A*** in Mathematics **A*** in Further Mathematics **A** in one other A-level (not General Studies or Critical Thinking) IB minimum requirements: 39 overall; 7 in Mathematics at Higher Level; 6 in Physics, Chemistry or Economics at Higher Level. For further information on entry requirements, please go to https://www.imperial.ac.uk/study/ug/apply/requirements/ugacademic/ 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 If you can demonstrate that you are fluent in the language you do not need a formal language qualification. Because of high demand for a limited number of places, selection of students wishing to spend their year abroad at a North American partner will take place during term 2 of year 2. Selection will mostly be on the

	basis of year 1 performance, a written personal statement, and a general interview. Students wishing to apply to spend their year abroad in North America should apply for any other Mathematics programme and then, if necessary, transfer to G104 during year 2.
Non-academic Requirements	N/A
English Language Requirement	Higher requirement Please check for other Accepted English Qualifications
Admissions Test/Interview	Mathematics Admissions Test (MAT) or STEP papers. No interview.

The programme's competency standards documents can be found at:
http://www.imperial.ac.uk/mathematics/undergraduate/course-structure-and-content/

Learning & Teaching Approach

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 4, the class size can be much smaller. Lecturers will take a variety of approaches: some will focus on presenting new material, others will expect students to have studied material beforehand and use the lecture as an interactive session to develop students' understanding.

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.

Problem-solving and group learning classes
Most year 1 and 2 modules are supported by classes delivered by at least one staff member staff, 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 4, 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 classes; producing coursework for submission; preparation for examinations.

Group Learning
You will have the opportunity to work in groups through tutorials, 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 4, you will complete a 15 ECTS Research Project under the guidance and supervision of a member of staff.

Overall Workload
Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the optional modules you choose to study, the following gives an indication of how much time you will need to allocate to different activities at each level of the programme. At Imperial, each ECTS credit taken equates to an expected total study time of 25 hours. Therefore, the indicative total study time is 1500 hours per year. As these are indicative study times, you may need to make reasonable 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 12 percent (180 hours) in year 4. During your year-abroad, this amount will depend on local practices and teaching styles. The remaining time is for self-study (including project work).

Assessment Strategy

Assessment Methods

A variety of different assessment methods is used, including:

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

Lecture modules in years 1, 2 and 4 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 year 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). Assessment during the year abroad will follow the practice of the host Department.

Academic Feedback Policy

Feedback will be provided in a number of formats:

- Oral (i.e. face-to-face) during problem classes and tutorials
- Personal (discussion with staff)
- Written (e.g. model answers, group feedback, individual comments written on coursework)
- Interactive (online 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 2 weeks.

Written feedback is provided on projects.

As feed-forward, students may view and discuss with an appropriate lecturer the marked scripts from their year 1 and 2 exams. Model solutions to all Mathematics exam papers are normally made available to students, together with comments from markers about performance on the papers.

The College's Policy on Academic Feedback and guidance on issuing provisional marks to students is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

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

Additional Programme Costs
This section should outline any additional costs relevant to this programme which are not included in students' tuition fees.
Students will need to consider the costs involved with placements. For students studying or working abroad as part of their programme, costs will vary with destination. Information on the types of costs which may be incurred can be found in the Placements Abroad Handbook which is available at https://www.imperial.ac.uk/placements/information-for-imperial-college-students/

Important notice: The Programme Specifications are the result of a large curriculum and pedagogy reform implemented by the Department and supported by the Learning and Teaching Strategy of Imperial College London. The modules, structure and assessments presented in this Programme Specification are correct at time of publication but might change as a result of student and staff feedback and the introduction of new or innovative approaches to teaching and learning. You will be consulted and notified in a timely manner of any changes to this document.

Programme Structure[1]

Year 1 – FHEQ Level 4
Students study all core / compulsory modules.

Code	Module Title	Core/ Compulsory/ Elective	Group*	Term	Credits
MATH40001	Introduction to University Mathematics	Core (pass/fail)	-	1	5
MATH40002	Analysis 1	Core	-	1,2	10
MATH40003	Linear Algebra and Groups	Core	-	1,2	10
MATH40004	Calculus and Applications	Core	-	1,2	10
MATH40005	Probability and Statistics	Core	-	1,2	10
MATH40006	Introduction to Computation	Core	-	1,2	5
MATH40007	An Introduction to Applied Mathematics	Compulsory	-	2	5
MATH40008	Individual Research Project	Core	-	3	5
	Language Classes (if required)	Core (if required); not for degree credit	-	1,2	7.5
				Credit Total	60 (67.5)

Year 2 - FHEQ Level 5
Students study all core modules. Select one module from Group A and 4 modules from Group B. Electives can be prerequisites for year 4 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. All students must take an i-Explore module. Students who are required to take a language module to meet study abroad requirements must choose this as their i-Explore module. Students who are exempt from the language requirement may choose freely from the available i-Explore options.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
MATH50001	Analysis 2	Core	-	1,2	10
MATH50003	Linear Algebra and Numerical Analysis	Core	-	1,2	10
MATH50002	Group Research Project	Core	-	3	5

[1] **Core** modules are those which serve a fundamental role within the curriculum, and for which achievement of the credits for that module is essential for the achievement of the target award. Core modules must therefore be taken and passed in order to achieve that named award. **Compulsory** modules are those which are designated as necessary to be taken as part of the programme syllabus. Compulsory modules can be compensated. **Elective** modules are those which are in the same subject area as the field of study and are offered to students in order to offer an element of choice in the curriculum and from which students are able to select. Elective modules can be compensated.

MATH50004	Multivariable Calculus and Differential Equations	Core	-	3	10
	I-Explore	Compulsory (pass/ fail)	A	1 &/or 2	5 or 7.5
MATH50005	Groups and Rings	Elective	B	1	5
MATH50007	Network Science	Elective	B	1	5
MATH50010	Probability for Statistics	Elective	B	1	5
MATH50006	Lebesgue Measure and Integration	Elective	B	2	5
MATH50008	Partial Differential Equations in Action	Elective	B	2	5
MATH50009	Principles of Programming	Elective	B	2	5
MATH50011	Statistical Modelling 1	Elective	B	2	5
				Credit Total	60 or 62.5

Year 3 - FHEQ Level: Level 6

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
MATH60051	Year Abroad	Core			60
				Credit Total	60

Year 4 - FHEQ Level 7
All modules are level 7. The list of modules is indicative. Students choose 6 modules from Group A. A student may not take both the level 6 and level 7 version of a module. Modules from other departments may be allowed with the permission of DUGS.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
MATH70050	Research Project in Mathematics	Core	-	1, 2 and 3	15
MATH70001	Fluid Dynamics 1	Elective	A	1	7.5
MATH70004	Asymptotic Methods	Elective	A	1	7.5
MATH70006	Applied Complex Analysis	Elective	A	1	7.5
MATH70007	Dynamics of Learning and Iterated Games	Elective	A	1	7.5
MATH70008	Dynamical Systems	Elective	A	1	7.5
MATH70011	Classical Dynamics	Elective	A	1	7.5
MATH70012	Mathematical Finance: An Introduction to Option Pricing	Elective	A	1	7.5

MATH70014	Mathematical Biology	Elective	A	1	7.5
MATH70015	Quantum Mechanics 1	Elective	A	1	7.5
MATH70016	Special Relativity and Electromagnetism	Elective	A	1	7.5
MATH70019	Theory of Partial Differential Equations	Elective	A	1	7.5
MATH70020	Function Spaces and Applications	Elective	A	1	7.5
MATH70023	Numerical Solutions of Ordinary Differential Equations	Elective	A	1	7.5
MATH70024	Computational Linear Algebra	Elective	A	1	7.5
MATH70026	Methods for Data Science	Elective	A	1	7.5
MATH70029	Functional Analysis	Elective	A	1	7.5
MATH70031	Markov Processes	Elective	A	1	7.5
MATH70032	Geometry of Curves and Surfaces	Elective	A	1	7.5
MATH70033	Algebraic Curves	Elective	A	1	7.5
MATH70034	Algebraic Topology	Elective	A	1	7.5
MATH70035	Algebra 3	Elective	A	1	7.5
MATH70036	Group Theory	Elective	A	1	7.5
MATH70038	Graph Theory	Elective	A	1	7.5
MATH70041	Number Theory	Elective	A	1	7.5
MATH70045	Applied Probability	Elective	A	1	7.5
MATH70046	Time Series Analysis	Elective	A	1	7.5
MATH70047	Stochastic Simulation	Elective	A	1	7.5
MATH70054	Introduction to Stochastic Differential Equations and Diffusion Processes	Elective	A	1	7.5
MATH70058	Manifolds	Elective	A	1	7.5
MATH70061	Commutative Algebra	Elective	A	1	7.5
MATH70064	Elliptic Curves	Elective	A	1	7.5
MATH70002	Fluid Dynamics 2	Elective	A	2	7.5
MATH70003	Introduction to Geophysical Fluid Dynamics	Elective	A	2	7.5
MATH70005	Optimisation	Elective	A	2	7.5
MATH70009	Bifurcation Theory	Elective	A	2	7.5
MATH70010	Geometric Mechanics	Elective	A	2	7.5

MATH70017	Tensor Calculus and General Relativity	Elective	A	2	7.5
MATH70018	Quantum Mechanics 2	Elective	A	2	7.5
MATH70021	Advanced Topics in Partial Differential Equations	Elective	A	2	7.5
MATH70022	Finite Elements: Numerical Analysis and Implementation	Elective	A	2	7.5
MATH70025	Computational Partial Differential Equations	Elective	A	2	7.5
MATH70027	Scientific Computation	Elective	A	2	7.5
MATH70028	Probability Theory	Elective	A	2	7.5
MATH70030	Fourier Analysis and the Theory of Distributions	Elective	A	2	7.5
MATH70037	Galois Theory	Elective	A	2	7.5
MATH70039	Group Representation Theory	Elective	A	2	7.5
MATH70040	Formalising Mathematics	Elective	A	2	7.5
MATH70042	Algebraic Number Theory	Elective	A	2	7.5
MATH70043	Statistical Theory	Elective	A	2	7.5
MATH70044	Statistical Modelling 2	Elective	A	2	7.5
MATH70048	Survival Models	Elective	A	2	7.5
MATH70049	Introduction to Statistical Learning	Elective	A	2	7.5
MATH70051	Vortex Dynamics	Elective	A	2	7.5
MATH70052	Hydrodynamic Stability	Elective	A	2	7.5
MATH70053	Random Dynamical Systems and Ergodic Theory	Elective	A	2	7.5
MATH70055	Stochastic Calculus and Applications to Nonlinear Filtering	Elective	A	2	7.5
MATH70056	Algebraic Geometry	Elective	A	2	7.5
MATH70057	Riemannian Geometry	Elective	A	2	7.5
MATH70059	Differential Topology	Elective	A	2	7.5
MATH70060	Complex Manifolds	Elective	A	2	7.5
MATH70062	Lie Algebras	Elective	A	2	7.5
MATH70131	Consumer Credit Risk Modelling	Elective	A	1	7.5
MATH70130	Stochastic Differential Equations in Financial Modelling	Elective	A	2	7.5
MATH70134	Mathematical Foundations of Machine Learning	Elective	A	2	7.5

MATH70135	Analytic Methods in Partial Differential Equations	Elective	A	2	7.5
MATH70132	Mathematical Logic	Elective	A	1	7.5
				Credit Total	60

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

Progression and Classification

Progression

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.

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: 40.00 percent
year 2: 60.00 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.

A student whose performance in their year abroad is judged to be unsatisfactory may be transferred to a BSc degree for their final year.

In year 1 the Board of Examiners may apply compensation in non-core modules up to a value of 5 ECTS.

In year 2 the Board of Examiners may apply compensation in elective modules up to a value of 5 ECTS.

In year 4 the Board of Examiners may apply compensation in elective modules up to a value of 15 ECTS

The Year Abroad cannot be compensated.

Classification

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, this process is applied consistently to all students in the cohort and reported to External Examiners and the Board of Examiners. Further details regarding the Department's approach to scaling may be found in the programme handbook.

The agreed mark for each module will be used to calculate year marks and final classifications using a weighted average. Pass fail/ modules in any year will be zero-weighted in computing the year average.

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

Year 1: 7.50 percent
Year 2: 25.00 percent
Year 3: 25.00 percent
Year 4: 42.50 percent.

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.

Your classification will be determined through:

i) Aggregate Module marks for all modules
ii) Year Weightings

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

i)	First	70.00% or above for the average weighted module results
ii)	Upper Second	60.00% or above for the average weighted module results
iii)	Lower Second	50.00% or above for the average weighted module results
iv)	Third	40.00% or above for the average weighted module results

Please find the full Academic Regulations at https://www.imperial.ac.uk/about/governance/academic-governance/regulations/. Please follow the prompts to find the set of regulations relevant to your programme of study.

Programme Specific Regulations

Note the comments regarding: selection for places at NA partners and scaling.

Policies and regulations may vary for students on a year abroad. You are encouraged to familiarise yourself with the relevant policies and regulations which will underpin your studies while abroad before you go. If you have any questions, please talk to your host institution or your home departmental contact.

Supporting Information
The Programme Handbook is available at: TBD
The Module Handbook is available at: TBD
The College's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/pg/apply/requirements
The College's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance
The College's Academic and Examination Regulations can be found at: www.imperial.ac.uk/about/governance/academic-governance/regulations
Imperial College is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine". www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/
Imperial College London is regulated by the Office for Students (OfS) www.officeforstudents.org.uk/advice-and-guidance/the-register/
This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for prospective and current students, academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.

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