



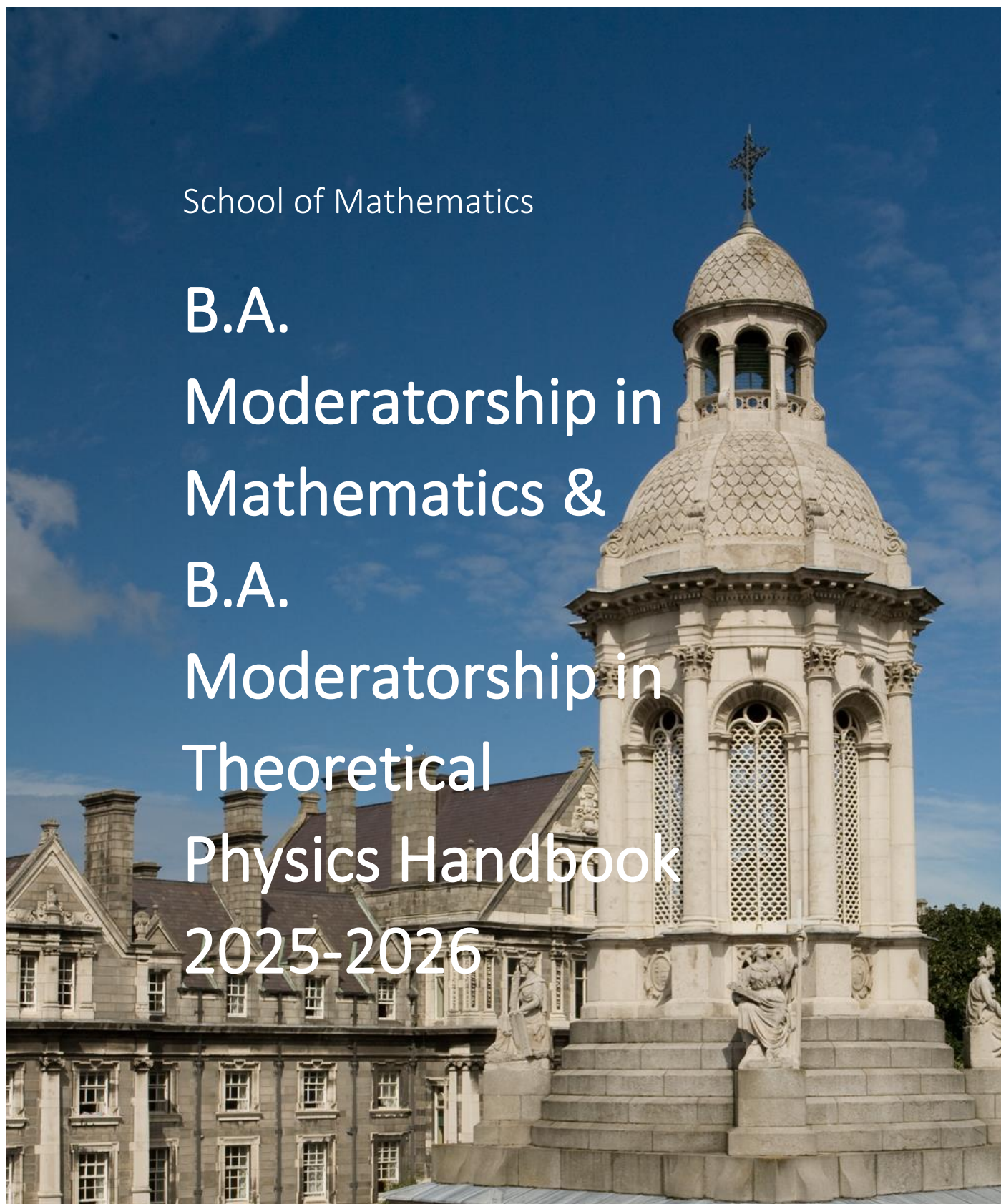
Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

School of Mathematics

B.A.
Moderatorship in
Mathematics &
B.A.
Moderatorship in
Theoretical
Physics Handbook
2025-2026



Contents

1. General Course Information	2
1.1 Introduction.....	2
1.2 Contact Details	3
1.3 Key Locations.....	5
1.4 Key Dates.....	Error! Bookmark not defined.
1.5 Timetable.....	7
1.6 Internships/Placements for Credit	7
1.7 Study Abroad/Erasmus.....	7
2. Scholarships and Prizes.....	7
2.1 Foundation Scholarships	8
2.2 Prizes, Medals and Other Scholarships	8
3. Teaching and Learning.....	12
3.1 Programme Architecture.....	12
3.2 Programme Structure and Workload.....	16
3.3 Coursework Requirements.....	36
3.4 College Statement on Artificial Intelligence and Generative AI in Teaching, Learning, Assessment and Research	38
3.5 Capstone Project	37
3.6 Marking Scale	38
3.7 Absence from Examinations.....	39
3.8 Awards.....	42
3.9 Graduate Attributes	43

3.10	Professional and Statutory Body Accreditation (if applicable)	44
3.11	Student Feedback and Evaluation.....	44

General Course Information

Introduction

On behalf of all our faculty and staff, it is my pleasure to welcome you to the School of Mathematics. Teaching lies at the heart of our school, and it is wonderful to see our lecture halls and corridors filled with new and returning students. This handbook is devised to guide you through the modules, policies, and resources available during your time at TCD.

While each programme offered by the school is distinct, all are designed to provide a broad and rigorous foundation in mathematics. The curriculum combines introductory modules with advanced, specialized topics. Depending on your chosen course and pathway, you will have some flexibility to tailor your module selection to your particular interests. But you are strongly encouraged to maintain a wide-ranging view. One of our key aims is to help students to see and appreciate the deep connections between different subjects and fields. As Stefan Banach puts it according to Stanislaw Ulam: *“Good mathematicians see analogies between theorems or theories, the very best ones see analogies between analogies.”*, and as Gian-Carlo Rota adds: *“Mathematics is the study of analogies between analogies. All science is. Scientists want to show that things that don’t look alike are really the same. That is one of their innermost Freudian motivations. In fact, that is what we mean by understanding.”*

Beyond your studies, there are many events organised by the student societies which have long-standing connections with the school. I highly recommend attending the talks, particularly those given by academics, which offer an exciting glimpse into the world of mathematical and theoretical physics research - fields in which you will be the future pioneers.

As you progress through the year, we hope this handbook serves as a valuable resource.

However, no guide can cover every question or situation, so please do not hesitate to reach out to us as we are always happy to help.

Katrin Wendland, Head of School

Contact Details

The School of Mathematics is based in the Hamilton Building, [View on the Trinity campus map](#)

Staff Name	Role/Title	Contact
Katrin Wendland	Head of School & SALI Professor of Mathematics	headmath@maths.tcd.ie
Jan Manschot	Director of Teaching and Learning (Undergraduate) & Associate Professor	undergrad_math@tcd.ie
Andrei Parnachev	Director of Research & Associate Professor	parnachev@maths.tcd.ie
Samson Shatashvili	Head of Discipline (AMTP) & University Chair of Natural Philosophy (1847)	samson@maths.tcd.ie
Stefan Sint	Director of Teaching & Learning (Postgraduate) & Associate Professor	sint@maths.tcd.ie
Dmitri Zaitsev	Director of Global Relations & Associate Professor	zaitsev@maths.tcd.ie
Sinead Ryan	Professor of Theoretical High Energy Physics	ryan@maths.tcd.ie
Sergey Frolov	Professor in Mathematics	frolovs@maths.tcd.ie
Andreea Nicoara	Accenture Associate Professor in Mathematics	anicoara@maths.tcd.ie
Ruth Britto	Associate Professor	brittor@tcd.ie
Paschalis Karageorgis	Associate Professor	pete@maths.tcd.ie
Jan Manschot	Associate Professor	manschot@maths.tcd.ie
Tristan McLoughlin	Associate Professor	tristan@maths.tcd.ie
Andrei Parnachev	Associate Professor	parnachev@maths.tcd.ie

Michael Peardon	Associate Professor	mjp@maths.tcd.ie
Stefan Sint	Associate Professor	sint@maths.tcd.ie
John G. Stalker	Associate Professor	stalker@maths.tcd.ie
Dmitri Zaitsev	Associate Professor	zaitsev@maths.tcd.ie
Patrick Fritzsche	Hitachi Assistant Professor in HPC	fritzscp@tcd.ie
Marvin Anas Hahn	Assistant Professor	hahnma@tcd.ie
Tommaso Cremaschi	Assistant Professor	cremasct@tcd.ie
Manuela Kulaxizi	Assistant Professor	manuela@maths.tcd.ie
Nicolas Mascot	Assistant Professor	mascotn@maths.tcd.ie
Sergey Mozgovoy	Associate Professor	mozgovoy@maths.tcd.ie
Florian Naef	Assistant Professor	naeff@tcd.ie
Nikhil Savale	Assistant Professor	
Kirk Soodhalter	Assistant Professor	ksoodha@maths.tcd.ie
Marius de Leeuw	RS-SFI Univ. Research Assistant Professor	mdeleeuw@maths.tcd.ie
Anthony Brown	Teaching Fellow Mathematics	Browna2@tcd.ie
Miriam Logan	Teaching Fellow Mathematics	loganmi@tcd.ie
Manya Sahni	Teaching Fellow Mathematics	sahnim@tcd.ie
Chaolun Wu	Teaching Fellow Mathematics	chaolunwu@maths.tcd.ie

School Coordinators

Marvin Hahn	Mathematics Course Coordinator	hahnma@tcd.ie
Ruth Britto	Theoretical Physics Course Coordinator	brittor@tcd.ie
Florian Naef	Student Exchange Coordinator	naeff@tcd.ie
Kirk Soodhalter	HPC MSc Coordinator	ksoodha@maths.tcd.ie
Marius de Leeuw	QFSG MSc Coordinator	mdeleeuw@maths.tcd.ie

Administrative Staff

Emma Clancy	Administrative Officer	clancyem@tcd.ie
Jennifer Murray	Administrative Officer	jennifer.murray@tcd.ie
Karen O'Doherty	School Manager	kod@maths.tcd.ie
Ciara Scanlon	Finance Officer	scanloci@tcd.ie

Key Locations

[Interactive College Map](#)

[Blackboard](#)

[Academic Registry](#)

[Student Supports & Services](#)

[IT Services](#)

Academic Year Structure

Academic Calendar Week	Week beginning	2025/26 Academic Year Calendar		Term / Semester
		UG continuing years / PG all years	UG new first years	
1	25-Aug-25	Reassessment 2024/25 - Semesters 1 & 2		4-Michaelmas Term begins/Semester 1 begins
2	01-Sep-25	Marking/Results		
3	08-Sep-25	Marking/Results and Orientation (PG, Visiting, Erasmus)		
4	15-Sep-25	Teaching and Learning	Orientation (if UG)	4-Michaelmas teaching term begins
5	22-Sep-25	Teaching and Learning	Teaching and Learning	
6	29-Sep-25	Teaching and Learning	Teaching and Learning	
7	06-Oct-25	Teaching and Learning	Teaching and Learning	
8	13-Oct-25	Teaching and Learning	Teaching and Learning	
9	20-Oct-25	Teaching and Learning	Teaching and Learning	
10	27-Oct-25	Study/Review (Monday, Public Holiday)	Study/Review (Monday, Public Holiday)	
11	03-Nov-25	Teaching and Learning	Teaching and Learning	
12	10-Nov-25	Teaching and Learning	Teaching and Learning	
13	17-Nov-25	Teaching and Learning	Teaching and Learning	
14	24-Nov-25	Teaching and Learning	Teaching and Learning	
15	01-Dec-25	Teaching and Learning	Teaching and Learning	
16	08-Dec-25	Revision / Assessment*	Revision / Assessment*	4-Michaelmas Term ends Sunday 24 December 2025/Semester 1 ends
17	15-Dec-25	Assessment*	Assessment*	
18	22-Dec-25	Assessment* / Christmas	Assessment* / Christmas	
19	29-Dec-25	Christmas Period - College closed 24 December 2025 to 3 January 2026 inclusive	Christmas Period - College closed 24 December 2025 to 3 January 2026 inclusive	
20	05-Jan-26	Foundation Scholarship Examinations	Foundation Scholarship Examinations	
21	12-Jan-26	Marking***	Marking***	4-Hilary Term begins/Semester 2 begins
22	19-Jan-26	Teaching and Learning	Teaching and Learning	4-Hilary teaching term begins
23	26-Jan-26	Teaching and Learning	Teaching and Learning	
24	02-Feb-26	Teaching and Learning (Monday, Public Holiday)	Teaching and Learning (Monday, Public Holiday)	
25	09-Feb-26	Teaching and Learning	Teaching and Learning	
26	16-Feb-26	Teaching and Learning	Teaching and Learning	
27	23-Feb-26	Teaching and Learning	Teaching and Learning	
28	03-Mar-26	Study/Review	Study/Review	
29	09-Mar-26	Teaching and Learning	Teaching and Learning	
30	16-Mar-26	Teaching and Learning (Tuesday, Public Holiday)	Teaching and Learning (Tuesday, Public Holiday)	
31	23-Mar-26	Teaching and Learning	Teaching and Learning	
32	30-Mar-26	Teaching and Learning (Friday, Good Friday)	Teaching and Learning (Friday, Good Friday)	
33	06-Apr-26	Teaching and Learning (Monday, Easter Monday)	Teaching and Learning (Monday, Easter Monday)	
34	13-Apr-26	Revision	Revision	4-Hilary Term ends Sunday 19 April 2026
35	20-Apr-26	Trinity Week (Monday, Trinity Monday) / Assessment**	Trinity Week (Monday, Trinity Monday) / Assessment**	4-Trinity Term begins
36	27-Apr-26	Assessment**	Assessment**	
37	04-May-26	Marking/Results (Monday, Public Holiday)	Marking/Results (Monday, Public Holiday)	
38	11-May-26	Marking/Results	Marking/Results	
39	18-May-26	Marking/Results	Marking/Results	
40	25-May-26	Research	Research	4-Trinity Term ends Sunday 31 May 2026/Semester 2 ends
41	01-Jun-26	Research (Monday, Public Holiday)	Research (Monday, Public Holiday)	
42	08-Jun-26	Research	Research	
43	15-Jun-26	Research	Research	
44	22-Jun-26	Research	Research	
45	29-Jun-26	Research	Research	
46	06-Jul-26	Research	Research	
47	13-Jul-26	Research	Research	
48	20-Jul-26	Research	Research	
49	27-Jul-26	Research	Research	
50	03-Aug-26	Research (Monday, Public Holiday)	Research (Monday, Public Holiday)	
51	10-Aug-26	Research	Research	
52	17-Aug-26	Research	Research	
53	24-Aug-26	Reassessment 2025/26 - Semesters 1 & 2	Reassessment 2025/26 - Semesters 1 & 2	

* Semester 1 assessment session: December 11 to 22, 2025 inclusive (No assessment after Dec 22nd)

** Semester 2 assessment session: April 21 to May 1, 2026 inclusive

*** Marking of Semester 1 assessments will continue into January and early February. Provisional Semester 1 results will be made available to students during the week commencing February 9, 2026

Timetable

Lecture timetables for the academic year are available through [My TCD](#). Timetables are also available on the [School website](#). Please ensure you keep an eye on your email and Blackboard for module updates throughout the year about important dates.

Internships

HAMILTON TRUST SUMMER INTERNSHIP PROGRAMME

Thanks to a generous donation from the Hamilton Trust, the School of Mathematics hosts a [mathematics research internship programme](#) during the summer. The programme takes place for 6 weeks from the beginning of June until mid-July.

Study Abroad/Erasmus

TCD has a renewed focus on encouraging students to spend up to a year of their studies at a University abroad, either in Europe via exchanges or further afield outside the European Union via a considerable number of bilateral agreements between TCD and Universities ranging from Australia to North America. Any queries can be directed to the Erasmus coordinator for the School of Mathematics. [Prof Florian Naef](#). Further information is also available through [Trinity Global](#)

SCHOLARSHIPS AND PRIZES

Foundation Scholarships

Candidates intending to present for these examinations must complete an online application form. This form should be submitted by the applicant and not by another party. A confirmation email will be sent via an intray message on their my.tcd.ie portal which may take up to 24 hours.

Application submission deadlines and exam dates are available on the following link [Foundation Scholarship - Academic Registry - Trinity College Dublin](#)

Application form, confirmation of attendance cert and further information can be found on the [Academic Registry Scholarship page](#)

Joint Honours Mathematics

[Information for Joint Honours Mathematics students](#)

Single Honours Mathematics

[Information for Single Honours Mathematics students](#)

Theoretical Physics

[Information for Theoretical Physics students](#)

Mathematics in the Science Moderatorships

[Information on Mathematics in the Science Scholarship Exam](#)

Mathematics in the Engineering Moderatorship, MEMS, MSISS, Computer Science

For these courses, please refer to the information from the course web sites or handbooks

Reference/Source:

[Calendar Part II, D 10: Foundation and Non-Foundation Scholarships](#)

Prizes, Medals and Other Scholarships

Continuing Students

The department is fortunate to have been the recipient of various endowments and bequests to provide prizes for students, a comprehensive list of prizes and their value is shown below. Most recently a fund was established in honour of, and named after John Lighton Synge the world renowned relativist and geometer, who has a long association with this College.

Louis Kennedy Prize: This prize was founded in 2004 by a benefaction in memory of Louis Kennedy (1958-200, B.A. 1979) from the estate of his father Richard Kennedy. It is awarded annually to the Junior Fresh student of mathematics in the Joint Honors moderatorship with the best annual examination result in mathematics. Value -€90.

Lloyd Exhibitions: These exhibitions were founded in 1839 by subscription in memory of Bartholomew Lloyd, Provost 1931-7. Three exhibitions may be awarded to the candidates who obtain highest marks at the Junior Sophister honour examination in mathematics. No student may obtain an exhibition a second time. Value - first prize €1,397, second prize €1,080, third prize €762.

Arthur Lyster Prize: In 1951 a sum was received under the will of Miss Alice Lyster to found a prize in mathematics and a further sum was added by her executors. Up to eight prizes may be awarded each year on the basis of examination performance in mathematics in any of the Junior Fresh, Senior Fresh or Junior Sophister years. A candidate who has been awarded a Townsend or Rowe prize or a Lloyd exhibition will not be eligible to receive a Lyster prize in the same year. Value - four at €477 each, two at €318 each, two at €159 each.

Michael Roberts Prize: This prize was founded in 1883 in memory of Michael Roberts, Fellow 1843-82, by a gift from his widow. It is awarded to the first unsuccessful candidate in mathematics in the foundation scholarship examination, provided that sufficient merit is shown. Value - €699.

Rowe Prize: This prize was founded in 1959 by a bequest from Mrs Olive Marjorie Rowe in memory of her husband, Charles Henry Rowe, Fellow 1920-43. It is awarded annually in two parts on the results of the Senior Fresh examination in mathematics. Value of each part €635.

Bishop Law Fund:

Established in 1796 by a gift of John Law, bishop of Elphin, to encourage the study of mathematics. The prize is awarded to the first moderator in mathematics, provided that a first class moderatorship is obtained. Value - €64

John Lighton Synge Prize in Mathematics: This prize was founded in 1992 from funds subscribed by friends and past colleagues and student to honour John Lighton Synge, F.R.S., M.R.I.A. (Scholar (1916), Fellow and Professor of natural Philosophy (1925-30), Honorary Fellow (1954-95)). It is awarded biennially to a candidate who has distinguished himself/herself at the examination for moderatorship (part I or part II) in general relativity theory or differential geometry, or in another topic in mathematics or theoretical physics related to Professor Synge's interests. Value - €350.

Townsend Memorial Prize: This prize was founded in 1885 by subscription in memory of Robert Townsend, Fellow 1845-84. It is awarded annually in three parts, on the result of the Junior Fresh honour examination in mathematics, special consideration being given to the answering on that part of the course related to geometrical studies. Value - first part €889, second part €762, third part €635.

Minchin Prize: The prize was founded in 1921 in memory of George Minchin, mathematician and Scholar of the College, by a gift from his widow. the prize fund was considerably increased in 1982 from a bequest received under the will of G.R.N. Minchin. The prize may be awarded annually in two parts in Michaelmas term to students who have performed with particular merit in the work of the previous Junior Sophister year in mathematics and/or physics. the Professor of Natural Philosophy and the Erasmus Smith's Professor of Natural and Experimental Philosophy in consultation will nominate suitable candidates to the Senior Lecturer, who will make the awards following the nominations. The Professors will take account of work performed throughout the whole of the Junior Sophister year. Value of each part of the prize €2000.

Gold Medal

The criteria for being awarded a **Gold Medal** for students graduating at the end of the 2025/26 academic year, i.e. students taking their Junior Sophister year 2024-25 and their Senior Sophister year 2025-26, is as follows - Gold Medals will be awarded to students who attain an overall mark of 80.00%, where the overall aggregated JS year result (weighted at 30%), along

with the overall aggregated SS year result (weighted at 70%), will be considered together, and if an overall mark of 80% in either Single Honors Mathematics or Theoretical Physics, the student will be recommended for Gold Medal. Gold Medals are awarded on the basis of a single annual attempt (to include Semesters 1 and 2 assessments). A deferral counts towards the single annual attempt. Gold Medals are not awarded to students who have to reassess in the Autumn.

Joint Honors Mathematics or Mathematics with NMS [Gold Medal Criteria](#).

Entering students:

A number of Entrance Exhibitions are awarded to beginning students. These are based on Leaving Certificate/A level marks, each entrance exhibition will be in the form of a book prize worth €300, awarded in two equal parts - the first in the Junior Fresh year and the second in the Senior Fresh year. Other awards offered at entrance are Sizars. Sizars are entrance exhibitioners of limited means who have their Commons free. The awards of sizarship are announced at the same time as the awards of exhibitions, these awards are subject to certain conditions, please refer to the University Calender.

There are other awards for beginning students also, and for these one should see the University Calendar. Some carry restrictions such as the Reid Exhibition, which is restricted to natives of County Kerry.

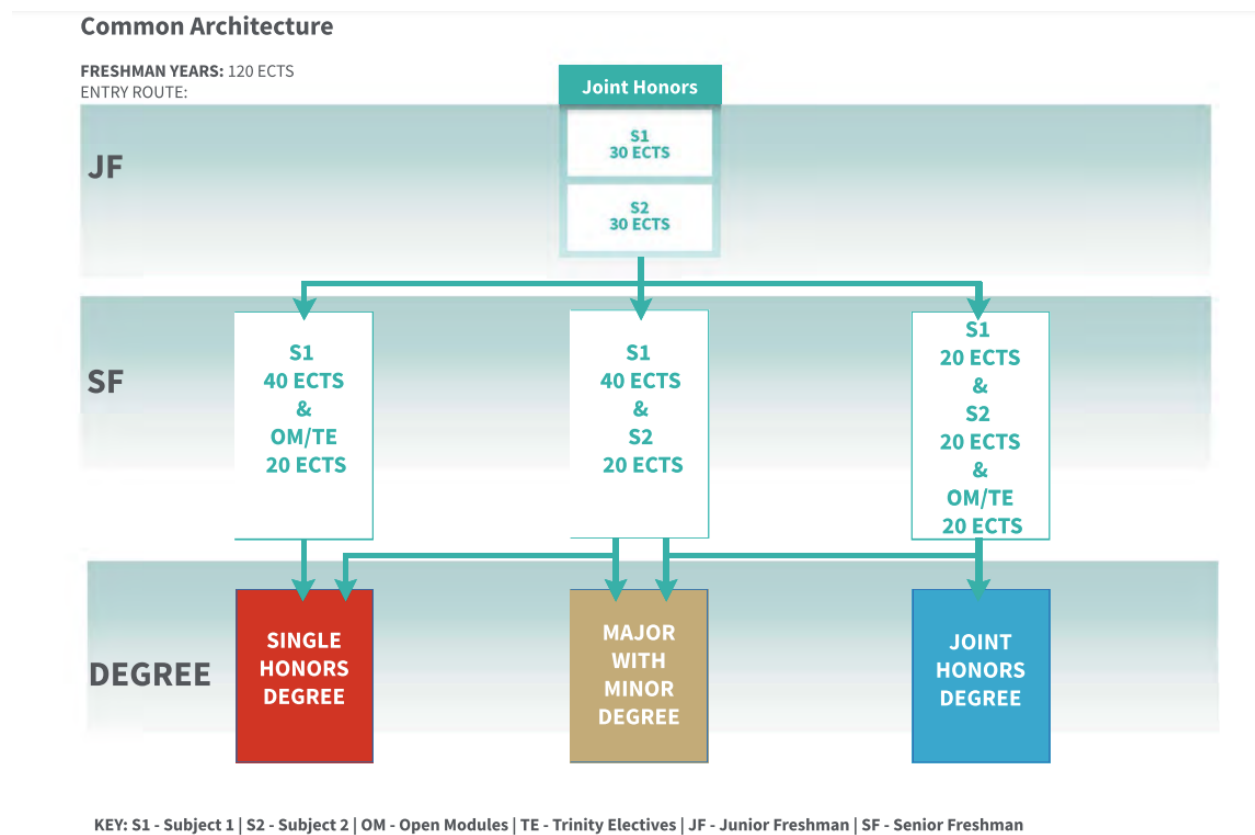
Financial Assistance

The College operates a student aid scheme, whereby students who have successfully completed their Junior Fresh year, and who are in difficult financial circumstances, may obtain a small grant.

TEACHING AND LEARNING

Programme Architecture

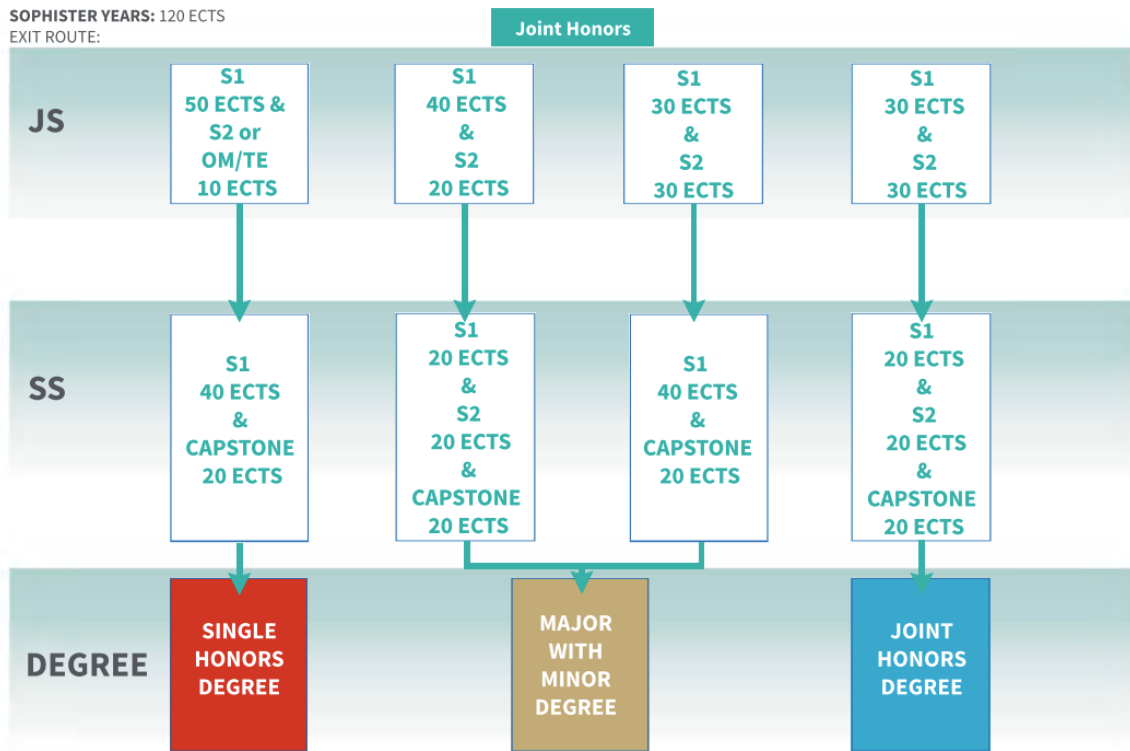
- Joint Honor architecture. Available pathways are subject to change and may be dependent subject to capacity.



Common Architecture

SOPHISTER YEARS: 120 ECTS

EXIT ROUTE:



KEY: S1 - Subject 1 | S2 - Subject 2 | OM - Open Modules | TE - Trinity Electives | JS - Junior Sophister | SS - Senior Sophister

- Single Honors Architecture. Available pathways are subject to change and may be dependent subject to capacity.

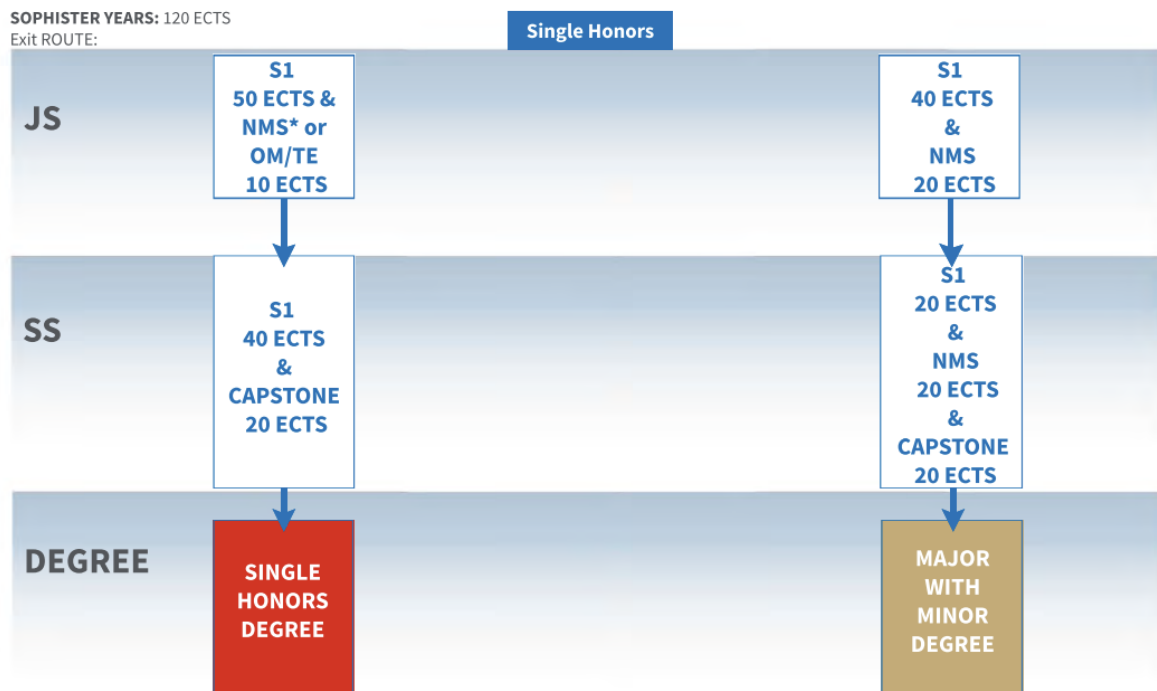
FRESHMAN YEARS: 120 ECTS
ENTRY ROUTE:



Common Architecture

SOPHISTER YEARS: 120 ECTS

Exit ROUTE:



*If took up NMS in SF

KEY: S1 - Subject 1 | OM - Open Modules | TE - Trinity Electives | NMS - New Minor Subject | JS - Junior Sophister | SS - Senior Sophister

Programme Structure and Module Descriptors

The School reserves the right to amend the list of available modules and to withdraw and add modules. Timetabling may restrict the availability of modules to individual students.

Single Honours Mathematics

Junior Fresh year

During their Junior Fresh year, students take a variety of compulsory modules in both pure and applied mathematics. A precise list of the available modules is given below. Unless indicated otherwise, each module is worth 5 ECTS credits.

Yearlong modules 2025-26

- MAU11100 Linear algebra [10 ECTS] Lecturer: Prof. Miriam Logan
- MAU11400 Mechanics [10 ECTS] Lecturer: Prof Jan Manschot /Manya Sahni

Semester 1 Modules

- MAU11201 Single-variable calculus [10 ECTS] Lecturer: [Prof. Paschalis Karageorgis](#)
- MAU11601 Introduction to programming [5 ECTS] Lecturer: Prof. Kirk Soodhalter
- STU12501 Introduction to statistics I [5 ECTS] Lecturer: Prof. Fergal Shevlin

Semester 2 Modules

- MAU11202 Advanced calculus [5 ECTS] Lecturer: Prof. Kirk Soodhalter
- MAU11204 Analysis on the real line [5 ECTS] Lecturer: Prof Nikhil Savale
- MAU11404 Techniques in theoretical physics [5 ECTS] Lecturer: Prof Chaolun Wu
- STU12502 Introduction to statistics II [5 ECTS] Lecturer: Prof.Athanasios Georgiadis

Joint Honors Entry Routes

Mathematics + Economics	<u>JF</u>
Mathematics + German or Russian	<u>JF</u>
Mathematics + Irish, Philosophy or Spanish	<u>JF</u>
Mathematics + Italian or Music	<u>JF</u>

Senior Fresh year

During their Senior Fresh year, students follow one of the available pathways. Their exact options are depicted in this [useful diagram](#) and they are also briefly outlined below.

- **Major with Minor pathway:** Students take 40 credits in Mathematics modules along with 20 credits in another minor subject.
- **Single Honors pathway:** Students take 40 credits in Mathematics modules along with 20 credits in Open Modules and Trinity Electives.

Students who follow the former pathway will be able to drop their minor subject and switch back to the Single Honors pathway a year later, if needed.

Minor in Statistics or other subjects

To complete a minor degree in another subject, students must take 20 credits in that subject every year for a total of 60 credits during their studies. One of the available options is a [minor in Statistics](#). This is designed exclusively for Single Honors Mathematics students and the quota is high enough to accommodate all students. It is also possible to pursue a minor in various [other subjects](#). However, these are offered to several cohorts of students across college and the available places are limited, so allocations are made based on the candidates' results during their Junior Fresh year.

Timetable pillars for minor subjects

For timetable purposes, the available minor subjects (other than Statistics) are divided into three groups, which are also known as pillars.

- **Pillar 1 subjects:** Classical civilisation, Drama studies, French, History.
- **Pillar 2 subjects:** Ancient history and archaeology, Economics, English, Italian, Linguistics, Music.
- **Pillar 4 subjects:** Classical languages, Geography, Irish, Philosophy, Religion, Social policy, Spanish.

Open Modules and Trinity Electives

Students who do not wish to pursue a minor subject must take 20 ECTS credits in Open Modules and Trinity Electives. They must take at least one Trinity Elective during their Senior Fresh year and at most one more (either during the same year or a year later). Trinity Electives are allocated based on the students' preferences and Open Modules are assigned on a first come first served basis.

Mathematics modules

The following list of Mathematics modules corresponds to the SH Mathematics pathway. One may use the [dropdown menu](#) to navigate to other pathways, if needed.

Credits must always be divided equally between the two semesters. Unless indicated otherwise, each module is worth 5 credits. To view the prerequisites for each module, one may hover their mouse over the module code. Modules listed with (c) are compulsory.

Yearlong Mathematics Modules

- [MAU22200 \(c\)](#) Advanced analysis (10 ECTS) [Katrin Wendland](#)

Semester 1 Mathematics Modules

- [CSU22011](#) Algorithms and data structures I [Vasileios Koutavas](#)
- [CSU22041](#) Information management I [Gaye Stephens](#)
- [MAU22101 \(c\)](#) Group theory [Tommaso Cremaschi](#)
- [MAU22203 \(c\)](#) Analysis in several real variables [Adam Keilthy](#)
- [MAU22205](#) Ordinary differential equations [Miriam Logan](#)
- [MAU22401](#) Advanced classical mechanics I [Chaolun Wu](#)
- [STU23501](#) Probability and theoretical statistics [Simon Wilson](#)

Semester 2 Mathematics Modules

- [MAU22102 \(c\)](#) Fields, rings and modules [Sergey Mozgovoy](#)
- [MAU22204 \(c\)](#) Introduction to complex analysis [Dmitri Zaitsev](#)
- [MAU22206](#) Calculus on manifolds [Florian Naef](#)
- [MAU22402](#) Advanced classical mechanics II [Chaolun Wu](#)
- [MAU22602](#) Introduction to numerical analysis [Stefan Sint](#)
- [STU22005](#) Applied probability II [Caroline Brophy](#)

Joint Honors Entry Routes

Mathematics + Economics	SF
Mathematics + German or Russian	SF
Mathematics + Irish, Philosophy or Spanish	SF
Mathematics + Italian or Music	SF

Open Modules and Trinity Electives 2025-26

- [Open Modules \(for SF Mathematics students\)](#)
- [Trinity Electives \(list of options\)](#)
- [Trinity Electives \(further details\)](#)

Junior Sophister year

During their Junior Sophister year, students follow one of the available pathways. Their exact options are outlined in this [useful diagram](#) and they are also briefly outlined below.

- **Major with Minor pathway:** Students take 40 credits in Mathematics modules along with 20 credits in another minor subject. If their minor subject is Statistics, they may also take Statistics modules as part of their Mathematics curriculum.
- **Single Honors pathway:** Students take 50 credits of Mathematics modules along with 10 credits of Open Modules and Trinity Electives.
- **Single Honors pathway NMS:** This option is only available for students who dropped their minor subject at the end of their Senior Fresh year. Instead of taking 10 credits of

Open Modules and Trinity Electives, these students may take 10 credits in the minor subject that they dropped.

Timetable pillars for minor subjects

For timetable purposes, the available minor subjects (other than Statistics) are divided into three groups, which are also known as pillars.

- **Pillar 1 subjects:** Classical civilisation, Drama studies, French, History.
- **Pillar 2 subjects:** Ancient history and archaeology, Economics, English, Italian, Linguistics, Music.
- **Pillar 4 subjects:** Classical languages, Geography, Irish, Philosophy, Religion, Social policy, Spanish.

Mathematics modules

The following list of Mathematics modules corresponds to the Single Honors pathway. One may use the [dropdown menu](#) to navigate to other pathways, if needed. Some combinations of modules may not be available because of timetable restrictions.

Credits must always be divided equally between the two semesters. Unless indicated otherwise, each module is worth 5 credits. To view the prerequisites for each module, one may hover their mouse over the module code. Modules listed with (c) are compulsory, while those listed with an asterisk are offered every other year.

Yearlong Mathematics Modules

- [MAU34900](#) Mathematics education (10 ECTS) [Miriam Logan](#) & [Aibhin Bray](#)

Semester 1 Mathematics Modules

- [CSU33081](#) Computational mathematics [Eamonn O Nuallain](#)
- [CSU34011](#) Symbolic programming [Tim Fernando](#)
- [CSU34016](#) Introduction to functional programming [Andrew Butterfield](#)
- [MAU33101](#) Introduction to number theory [Adam Keilthy](#)
- [MAU33205](#) Ordinary differential equations [Miriam Logan](#)
- [MAU33301](#) Topics in combinatorial algebraic geometry [Marvin Anas Hahn](#)
- [MAU33401](#) Advanced classical mechanics I [Chaolun Wu](#)

- [MAU34101](#)* Galois theory [Nicolas Mascot](#)
- [MAU34103](#)* Lie algebras and Lie groups [Sergey Mozgovoy](#)
- [MAU34107](#) Combinatorics [Marvin Anas Hahn](#)
- [MAU34209](#) Advanced complex analysis [Dmitri Zaitsev](#)
- [MAU34215](#)* Introduction to partial differential equations [John Stalker](#)
- [MAU34301](#)* Differential geometry [Tommaso Cremaschi](#)
- [MAU34303](#) Discrete geometry [Marvin Anas Hahn](#)
- [MAU34401](#) Classical field theory [Andrei Parnachev](#)
- [MAU34403](#) Quantum mechanics I [Sergey Frolov](#)
- [MAU34601](#) Practical numerical simulations [Patrick Fritzsche](#)
- [STU23501](#) Probability and theoretical statistics [Simon Wilson](#)
- [STU33010](#) Forecasting [Alessio Benavoli](#)
- [STU33011](#) Multivariate linear analysis [Arthur White](#)
- [STU34501](#)* Applied linear statistical methods I [Jason Wyse](#)
- [STU34507](#)* Statistical inference I [Simon Wilson](#)
- [STU44005](#) Decision analysis [Athanasios Georgiadis](#)

Semester 2 Mathematics Modules

- [CSU33061](#) Artificial intelligence I [Tim Fernando](#)
- [MAU33302](#) Euclidean and non-Euclidean geometry [Adam Kielthy](#)
- [MAU33402](#) Advanced classical mechanics II [Chaolun Wu](#)
- [MAU34102](#)* Commutative algebra [Sergey Mozgovoy](#)
- [MAU34214](#) Calculus on manifolds [Florian Naef](#)
- [MAU34216](#)* Advanced partial differential equations [Paschalis Karageorgis](#)
- [MAU34306](#)* Manifold Topology [Florian Naef](#)
- [MAU34308](#)* Techniques in geometry [Nikhil Savale](#)
- [MAU34402](#) Classical electrodynamics [Stefan Sint](#)
- [MAU34404](#) Quantum mechanics II [Michael Peardon](#)

- [MAU34604](#) Introduction to numerical analysis [Stefan Sint](#)
- [STU22005](#) Applied probability II [Caroline Brophy](#)
- [STU34502](#)* Applied linear statistical methods II [Alessio Benavoli](#)
- [STU34508](#)* Applied linear statistical methods II [Jason Wyse](#)

Joint Honors Entry Routes

Mathematics + Economics	JS
Mathematics + German or Russian	JS
Mathematics + Irish, Philosophy or Spanish	JS
Mathematics + Italian or Music	JS

Senior Sophister year

During their Senior Sophister year, students follow one of the available pathways. Their exact options are outlined in this [useful diagram](#) and they are also briefly outlined below.

- **Major with Minor pathway:** Students take the 20-credit Capstone project MAU44P00 along with 20 credits of Mathematics modules and 20 credits in their minor subject. If their minor subject is Statistics, they may also take Statistics modules as part of their Mathematics curriculum.
- **Single Honors pathway:** Students take the 20-credit Capstone project MAU44P00 along with 40 credits of Mathematics modules.
- **Single Honors pathway NMS:** Students take the 20-credit Capstone project MAU44P00 along with 40 credits of Mathematics modules.

Timetable pillars for minor subjects

For timetable purposes, the available minor subjects (other than Statistics) are divided into three groups, which are also known as pillars.

- **Pillar 1 subjects:** Classical civilisation, Drama studies, French, History.

- **Pillar 2 subjects:** Ancient history and archaeology, Economics, English, Italian, Linguistics, Music.
- **Pillar 4 subjects:** Classical languages, Geography, Irish, Philosophy, Religion, Social policy, Spanish.

Mathematics modules

The following list of Mathematics modules corresponds to the Single Honors Mathematics pathway. One may use the [dropdown menu](#) to navigate to other pathways, if needed. Some combinations of modules may not be available because of timetable restrictions.

Credits must always be divided equally between the two semesters. Unless indicated otherwise, each module is worth 5 credits. To view the prerequisites for each module, one may hover their mouse over the module code. Modules listed with (c) are compulsory, while those listed with an asterisk are offered every other year.

Yearlong Mathematics Modules

- [MAU34900](#) Mathematics education (10 ECTS) [Miriam Logan](#) [Aibhin Bray](#)
- [MAU44P00](#) (c) Capstone project (20 ECTS) [Marvin Anas Hahn](#)
- [STU44003](#) Data analytics (10 ECTS)

Semester 1 Mathematics Modules

Semester 1 mathematics modules 2025-26

- [CSU34011](#) Symbolic programming [Tim Fernando](#)
- [CSU34016](#) Introduction to functional programming [Andrew Butterfield](#)
- [CSU44001](#) Fuzzy logic and control systems [Khurshid Ahmad](#)
- [CSU44004](#) Formal verification [Vasileios Koutavas](#)
- [CSU44052](#) Computer graphics
- [CSU44053](#) Computer vision [Kenneth Dawson-Howe](#)
- [MAU34101](#)* Galois theory [Nicolas Mascot](#)
- [MAU34103](#)* Lie algebras and Lie groups [Sergey Mozgovoy](#)
- [MAU34107](#) Combinatorics [Marvin Anas Hahn](#)
- [MAU34209](#) Advanced complex analysis [Dmitri Zaitsev](#)
- [MAU34215](#)* Introduction to partial differential equations [John Stalker](#)
- [MAU34301](#)* Differential geometry [Tommaso Cremaschi](#)

- [MAU34303](#) Discrete geometry [Marvin Anas Hahn](#)
- [MAU34401](#) Classical field theory [Andrei Parnachev](#)
- [MAU34403](#) Quantum mechanics I [Sergey Frolov](#)
- [MAU34601](#) Practical numerical simulations [Patrick Fritzsche](#)
- [STU34501](#)* Applied linear statistical methods I [Jason Wyse](#)
- [STU34507](#)* Statistical inference I [Simon Wilson](#)

Semester 2 Mathematics Modules

- [MAU34102](#)* Commutative algebra [Sergey Mozgovoy](#)
- [MAU34216](#)* Advanced partial differential equations [Paschalis Karageorgis](#)
- [MAU3430](#)* Introduction to algebraic geometry [Andreea Nicoara](#)
- [MAU34308](#)* Techniques in geometry [Nikhil Savale](#)
- [MAU34402](#) Classical electrodynamics [Stefan Sint](#)
- [MAU34404](#) Quantum mechanics II [Michael Peardon](#)
- [MAU34804](#) Fixed point theorems and economic equilibria [John Stalker](#)
- [STU34502](#)* Applied linear statistical methods II [Alessio Benavoli](#)
- [STU34508](#)* Applied linear statistical methods II [Jason Wyse](#)

Joint Honors Entry Routes

Mathematics + Economics	<u>SS</u>
Mathematics + German or Russian	<u>SS</u>
Mathematics + Irish, Philosophy or Spanish	<u>SS</u>
Mathematics + Italian or Music	<u>SS</u>

Theoretical Physics - Junior Fresh year

During their Junior Fresh year, students take 40 ECTS credits of compulsory modules in Mathematics and 20 ECTS credits of compulsory modules in Physics. A precise list of the available modules is given below. Unless indicated otherwise, each module is worth 5 ECTS credits.

A) Minimum mark requirement and Qualified Fails in Fresher years

- i. *These regulations apply to the Fresher JF and SF 10 credit modules that are core to Physical Sciences (TR063) and Theoretical Physics (TR035), and which are available as Open modules to JF and SF Chemical Sciences (TR031) students. These modules are JF: PYU11P10, PYU11T10, PYU11P20, PYU11T20; and in SF: PYU22P10, PYU22T10, PYU22P20, PYU22T20. (This does not include PYU11F10, PYU11F20, PYU11H20).*
- ii. *In these Fresher modules there is a **minimum mark requirement of 30%** separately in both the Examination component and the Laboratory component, in order for either a Pass or a Qualified Pass mark in the module to be granted. The Progression threshold is not simply an overall module mark of 40% or higher, but requires minimum marks in these components.*
- iii. *A mark of less than 30% in either the Examination or Laboratory components leads to a Qualified Fail. A Qualified Fail requires reassessment in that component before progression to the next year can occur. Reassessment of the exam component is in the reassessment examination period; reassessment of the laboratory component occurs before the beginning of the reassessment examination period.*
- iv. *If a mark of less than 30% occurs or recurs in the examination or laboratory component following the reassessment period, the student cannot progress and must repeat the year. This necessarily applies to students who had deferred their first attempt at examinations to the reassessment period.*
- v. *Students who fail a module with a module mark of <40%, but $\geq 35\%$ are not eligible for Pass by Compensation, or a Qualified Pass, if either of the examination or laboratory components is less than 30%.*
- vi. *For context only, two points are repeated from the general Undergraduate Progression and Awards regulations. The first is that as much as 10 credits can be eligible for a Qualified Pass or a pass by compensation with marks of 35% or higher, provided the other 50 credits of module marks are 40% or higher, and there is an overall pass. Secondly, students who fail a given module can only be reassessed in failed components of the module.*

B) Capping of reassessed components in the reassessment session in Fresher and Sophister years

- In reassessments, a cap (maximum mark) of 60% will apply to
 - i) all the reassessed components for core Junior Fresh and Senior Fresh Physics modules delivered as part of the Physical Sciences and Theoretical Physics courses (and available to students in the Chemical Sciences course as Open modules) which are listed above in A(i).
 - ii) all reassessed components of all modules in the Sophister years (except Trinity Electives) within the four accredited degree programmes Physics, Physics & Astrophysics, Nanoscience, and Theoretical Physics, irrespective of the owning School. Accreditation of these degree programmes is by the Institute of Physics (IoP).
- The abovementioned capping will apply to re-assessed components of the affected School of Physics (PYU code) modules irrespective of the degree stream of the student, registration or visiting student status, or year of first admission. The Sophister PYU modules are not available to any other non-accredited Sophister degree programmes.
- Re-assessment capping does not apply to deferred 1st attempts at assessment.

Yearlong Modules

- MAU11100 Linear algebra (10 ECTS) Miriam Logan
- MAU11400 Mechanics (10 ECTS) Jan Manschot Manya Sahn

Semester 1 Modules

- MAU11201 Single-variable calculus (10 ECTS) Paschalis Karageorgis
- PYU11T10 Physics for Theoretical Physics (10 ECTS)

Semester 2 Modules

- MAU11202 Advanced calculus Kirk Soodhalter
- MAU11404 Techniques in theoretical physics Chaolun Wu
- PYU11T20 Physics for Theoretical Physics (10 ECTS)

Theoretical Physics – Senior Fresh year

A) Minimum mark requirement and Qualified Fails in Fresher years

- vii. *These regulations apply to the Fresher JF and SF 10 credit modules that are core to Physical Sciences (TR063) and Theoretical Physics (TR035), and which are available as Open modules to JF and SF Chemical Sciences (TR031) students. These modules are JF: PYU11P10, PYU11T10, PYU11P20, PYU11T20; and in SF: PYU22P10, PYU22T10, PYU22P20, PYU22T20. (This does not include PYU11F10, PYU11F20, PYU11H20).*
- viii. *In these Fresher modules there is a **minimum mark requirement of 30%** separately in both the Examination component and the Laboratory component, in order for either a Pass or a Qualified Pass mark in the module to be granted. The Progression threshold is not simply an overall module mark of 40% or higher, but requires minimum marks in these components.*
- ix. *A mark of less than 30% in either the Examination or Laboratory components leads to a Qualified Fail. A Qualified Fail requires reassessment in that component before progression to the next year can occur. Reassessment of the exam component is in the reassessment examination period; reassessment of the laboratory component occurs before the beginning of the reassessment examination period.*
- x. *If a mark of less than 30% occurs or recurs in the examination or laboratory component following the reassessment period, the student cannot progress and must repeat the year. This necessarily applies to students who had deferred their first attempt at examinations to the reassessment period.*
- xi. *Students who fail a module with a module mark of <40%, but $\geq 35\%$ are not eligible for Pass by Compensation, or a Qualified Pass, if either of the examination or laboratory components is less than 30%.*
- xii. *For context only, two points are repeated from the general Undergraduate Progression and Awards regulations. The first is that as much as 10 credits can be eligible for a Qualified Pass or a pass by compensation with marks of 35% or higher, provided the other 50 credits of module marks are 40% or higher, and there is an overall pass. Secondly, students who fail a given module can only be reassessed in failed components of the module.*

B) Capping of reassessed components in the reassessment session in Fresher and Sophister years

- *In reassessments, a cap (maximum mark) of 60% will apply to*
 - *i) all the reassessed components for core Junior Fresh and Senior Fresh Physics modules delivered as part of the Physical Sciences and Theoretical Physics*

courses (and available to students in the Chemical Sciences course as Open modules) which are listed above in A(i).

- *ii) all reassessed components of all modules in the Sophister years (except Trinity Electives) within the four accredited degree programmes Physics, Physics & Astrophysics, Nanoscience, and Theoretical Physics, irrespective of the owning School. Accreditation of these degree programmes is by the Institute of Physics (IoP).*
- *The abovementioned capping will apply to re-assessed components of the affected School of Physics (PYU code) modules irrespective of the degree stream of the student, registration or visiting student status, or year of first admission. The Sophister PYU modules are not available to any other non-accredited Sophister degree programmes.*
- *Re-assessment capping does not apply to deferred 1st attempts at assessment.*

During their Senior Fresh year, students take 20 ECTS credits of compulsory modules in Mathematics, 20 ECTS credits of compulsory modules in Physics, 10 ECTS credits in Open Modules and 10 ECTS credits in Trinity Electives. Unless indicated otherwise, each module is worth 5 ECTS credits.

TP course structure: Students should consult this [file](#) for a list of all modules that will be available during their studies and this [diagram](#) for the prerequisites that will be assumed by these modules.

Semester 1 Compulsory Modules

- [MAU22401](#) Advanced classical mechanics I [Chaolun Wu](#)
- [MAU23403](#) Equations of mathematical physics I [Manya Sahni](#)
- [PYU22T10](#) Classical physics for Theoretical Physics (10 ECTS)

Semester 1 Open Modules and Trinity Electives

- [MAU11601](#) Introduction to programming [Kirk Soodhalter](#)
- [MAU22101](#) Group theory [Tommaso Cremaschi](#)
- [STU12501](#) Introduction to statistics I [Fergal Shevlin](#)

Trinity Electives

Students take the compulsory modules listed above along with 1 Open Module and 1 Trinity Elective each semester. However, they may not take the Trinity Elective "From planets to the Cosmos". Trinity Electives are allocated based on the students' preferences and STU12501 has a quota of 10 students.

Semester 2 Compulsory Modules

- MAU22204 Introduction to complex analysis [Dmitri Zaitsev](#)
- MAU22402 Advanced classical mechanics II [Chaolun Wu](#)
- PYU22T20 Modern physics for Theoretical Physics (10 ECTS)

Semester 2 Open Modules and Trinity Electives

- MAU11204 Analysis on the real line Nikhil Savale
- MAU22302 Euclidean and non-Euclidean geometry [Adam Keilthy](#)

Trinity Electives

Students take the compulsory modules listed above along with 1 Open Module and 1 Trinity Elective each semester. They may not take the Trinity Elective "From planets to the Cosmos", however. Trinity Electives are allocated based on the students' preferences and STU12502 has a quota of 10 students.

Theoretical Physics - Junior Sophister year

All PYU and MAU modules will be subject to capping of 60% on all reassessed components.

Reassessment capping does not apply to deferred 1st attempts at assessments.

During their Junior Sophister year, students take 30 ECTS credits of compulsory modules in Mathematics, 20 ECTS credits of compulsory modules in Physics and 10 ECTS credits of Open Modules. Unless indicated otherwise, each module is worth 5 ECTS credits.

TP course structure: Students should consult this [file](#) for a list of all modules that will be available during their studies and this [diagram](#) for the prerequisites that will be assumed by these modules.

Yearlong Compulsory Modules

- [PYU33TP1](#) Practical in theoretical physics (10 ECTS)

Semester 1 Compulsory Modules

- [MAU34401](#) Classical field theory [Andrei Parnachev](#)
- [MAU34403](#) Quantum mechanics I [Sergey Frolov](#)
- [MAU34405](#) Statistical physics I [Tristan McLoughlin](#)
- [PYU33P03](#) Condensed Matter I

Semester 1 Open Modules

- [MAU33203](#) Analysis in several real variables [Adam Keilthy](#)
- [PYU33A03](#) Stellar and galactic structure
- [PYU33C01](#) Computer simulation I
- [STU23501](#) Probability and theoretical statistics [Simon Wilson](#)

Students take the compulsory modules listed above and 1 Open Module each semester.

STU23501 has a quota of 10 students and modules listed with an asterisk are offered every other year.

Semester 2 Compulsory Modules

- [MAU34402](#) Classical electrodynamics [Stefan Sint](#)
- [MAU34404](#) Quantum mechanics II [Michael Peardon](#)
- [MAU34406](#) Statistical physics II [Tristan McLoughlin](#)
- [PYU33P15](#) Atomic physics & Statistical thermodynamics

Semester 2 Open Modules

- [MAU34214](#) Calculus on manifolds [Florian Naef](#)
- [MAU34604](#) Introduction to numerical analysis [Stefan Sint](#)
- [PYU33P04](#) Condensed Matter II: Semiconductor Physics
- [STU22005](#) Applied probability II [Caroline Brophy](#)

Students take the compulsory modules listed above and 1 Open Module each semester. STU22005 has a quota of 10 students and modules listed with an asterisk are offered every other year.

Theoretical Physics - Senior Sophister year

All PYU and MAU modules will be subject to capping of 60% on all reassessed components.

Reassessment capping does not apply to deferred 1st attempts at assessments.

During their Senior Sophister year, students take the compulsory Semester 1 module PYU44PP5 along with a 20-credit yearlong Capstone Project in either Mathematics (MAU44P00) or Physics (PYU44TP1). All their remaining modules from the list below are optional, but they are subject to the following restrictions.

- Credits must be split evenly between the two semesters.
- At least one MAU and one PYU module must be taken (other than the Capstone Project) each semester.
- Students must take either the Semester 1 module MAU34301 or the yearlong module MAU44400.
- Students must take either the Semester 2 module MAU44406 or the Semester 2 module PYU44P12, but not both.
- The Semester 2 modules PYU44A05 and PYU44P16 may not be taken at the same time.

Yearlong Modules

- [MAU44400](#) Quantum field theory (10 ECTS) [Samson Shatashvili](#)
- [MAU44P00](#) Capstone project (20 ECTS) [Marvin Anas Hahn](#)
- [PYU44TP1](#) Capstone project (20 ECTS)

Semester 1 Modules

- [MAU34107](#) Combinatorics [Marvin Anas Hahn](#)
- [MAU34215](#)* Introduction to partial differential equations [John Stalker](#)
- [MAU34409](#) Applied differential geometry [Sergey Frolov](#)
- [MAU34407](#) Lie groups, Lie algebras and physics [Chaolun Wu](#)
- [MAU34601](#) Practical numerical simulations [Patrick Fritzsche](#)
- [PYU44PP5](#) Problem solving for physics

- [PYU44T10](#) Condensed matter theory

The module PYU44PP5 is compulsory, while the remaining modules are optional, subject to the restrictions listed above. Further details about the Physics modules can be found in the [Course Handbook](#).

Semester 2 Open Modules

- [MAU34216](#)* Advanced partial differential equations [Paschalis Karageorgis](#)
- [MAU34410](#) Interacting quantum systems [Chaolun Wu](#)
- [MAU44404](#) General relativity [Andrei Parnachev](#)
- [MAU44406](#) The standard model of elementary particle physics [Ruth Britto](#)
- [PYU44A05](#) Cosmology
- [PYU44C01](#) Computer simulation II
- [PYU44P12](#) Nuclear structure and high energy physics
- [PYU44P16](#) Quantum plasmonics and metamaterials
- [PYU44P17](#) Energy science
- [PYU44T20](#) Quantum optics and information

All Semester 2 modules are optional, subject to the restrictions listed above. Further details about the Physics modules can be found in the [Course Handbook](#).

Dual BA Program in Mathematics between Trinity College Dublin and Columbia University

Inaugurated in November 2017, the Dual BA Program between Trinity College Dublin and Columbia University offers students an international educational experience with a program spanning two continents and cosmopolitan cities. The Program allows students to enhance their global outlook and develop their language skills and communication abilities to the highest academic level.

As a Dual BA student, you'll have the opportunity to immerse yourself in two different academic, social, and cultural environments at world-renowned research universities. You will spend the first two years studying in Dublin and the final two years in the heart of New York City.

The Dual BA Program between Trinity College Dublin and Columbia University builds upon the success of two pre-existing international dual degree programs within the School of General

Studies, and a long-standing exchange program partnership between both universities. This marks the third transatlantic undergraduate program at Columbia University. The Dual Degree Program is founded upon previous partnerships in both Europe and Asia, and serves as a model for future cooperative efforts between Columbia and international universities.

Junior Fresh year

During their Junior Fresh year, students take a variety of compulsory modules in both pure and applied mathematics. A precise list of the available modules is given below. Unless indicated otherwise, each module is worth 5 ECTS credits.

Yearlong modules 2025-26

- MAU11100 Linear algebra [10 ECTS] Lecturer: Prof. Miriam Logan
- MAU11400 Mechanics [10 ECTS] Lecturer: Prof Jan Manschot /Manya Sahni

Semester 1 Modules

- MAU11201 Single-variable calculus [10 ECTS] Lecturer: Paschalis Karageorgis
- MAU11601 Introduction to programming [5 ECTS] Lecturer: Prof. Kirk Soodhalter
- STU12501 Introduction to statistics I [5 ECTS] Lecturer: Prof. Fergal Shevlin

Semester 2 Modules

- MAU11202 Advanced calculus [5 ECTS] Lecturer: Kirk Soodhalter
- MAU11204 Analysis on the real line [5 ECTS] Lecturer: Nikhil Savale
- MAU11404 Techniques in theoretical physics [5 ECTS] Lecturer: Prof Chaolun Wu
- STU12502 Introduction to statistics II [5 ECTS] Lecturer: Prof.Athanasios Georgiadis

Senior Fresh year

During their Senior Fresh year, students take 30 ECTS in compulsory Core Course Modules, it is compulsory for students to also choose MAU22206 Calculus on Manifolds, and one other 5 ECTS Maths module. Students choose 10 ECTS in non-core foreign languages and 10 ECTS in [Trinity Electives](#).

Yearlong Mathematics Modules

- MAU22200 (c) Advanced analysis (10 ECTS) Katrin Wendland

Semester 1 Mathematics Modules

- CSU22011 Algorithms and data structures I Vasileios Koutavas
- CSU22041 Information management I Gaye Stephens
- MAU22101 (c) Group theory Tommaso Cremaschi
- MAU22203 (c) Analysis in several real variables Adam Keilthy
- MAU22205 Ordinary differential equations Miriam Logan
- MAU22401 Advanced classical mechanics I Chaolun Wu
- STU23501 Probability and theoretical statistics Simon Wilson

Semester 2 Mathematics Modules

- MAU22102 (c) Fields, rings and modules Sergey Mozgovoy
- MAU22204 (c) Introduction to complex analysis Dmitri Zaitsev
- MAU22206 Calculus on manifolds Florian Naef
- MAU22402 Advanced classical mechanics II Chaolun Wu
- MAU22602 Introduction to numerical analysis Stefan Sint
- STU22005 Applied probability II Caroline Brophy

Trinity Electives

Further details on the Dual BA can be found on the following link;

<https://tcd.gs.columbia.edu/>

School of Mathematics Teaching Modules

Engineering and MSISS	<u>JF</u>	<u>SF</u>	<u>JS</u>
Science	<u>JF</u>	<u>SF</u>	
Computer Science		<u>SF</u>	

Blackboard/Virtual Learning Environment (VLE)

Blackboard Learn is the University's Virtual Learning Environment (VLE) providing an online space for staff and students to interact. Depending on your module, you can access lecture

notes, online assignments and other activities. All registered students automatically have accounts in Blackboard. All modules you are registered to should appear here. If your modules are not listed, please check with the module coordinator to ensure you are enrolled and timetabled for the modules.

For more information on access and enrolment issues, visit the [IT Services VLE page](#).

Policy on Trinity Virtual Learning Environment

Sources of Information

The University of Dublin Calendar

All courses within Trinity College are administered in accordance with the regulations set out in the The University of Dublin Calendar which is published annually. The section of the Calendar setting out the general regulations of the College is published separately in the booklet General Regulations and Information and *Board Statement on Safety* which is distributed to all students on admission to College.

Important information

- All students should study the requirements of the university with regard to avoiding plagiarism. In particular all students are required to certify, on submitting assignments etc., that they have read and understood the plagiarism provisions in the General Regulations of the University Calendar for the current year found at <https://www.tcd.ie/calendar>, and that they have also completed the Online Tutorial on avoiding plagiarism 'Ready Steady Write' located at https://www.tcd.ie/library/support/plagiarism/story_html5.html.
- Student Guidelines concerning Examinations and Assessment are available on the College web site.
- For students with special requirements resulting from disabilities, there are special arrangements that can be made.
- For dates of terms and other College dates consult the Academic Year Structure listed on the College website.
- For information on their academic progress, including information on course and module registrations, lecture timetables, examination timetables and examination results, students should log into My.tcd.ie (the student administration portal) with their College username and password.
- Some modules may require students to log into MyModule (Blackboard) for lecture notes and slides, and for assessment purposes (online completion of tests, submission of assignments, etc.).
- There is a Student Homepage on the College website, which may be accessed via a link from the TCD Local page.

Reference/Source:

Student Learning Development

Accessible Information Policy

Coursework Requirements

Students are required to attend classes and submit assessment work in all modules. A student is deemed *non-satisfactory* in a term when more than a third of required work/attendance in that term is missed. Any student who is deemed *non-satisfactory* in each of the two terms may, in accordance with the regulations laid down by the University Council, be refused permission to take examinations in that year.

To be allowed to sit the ordinary examinations a student must have paid the relevant College annual fees and must be in good standing. There is no examination fee payable. There is no notice required of intention to take an examination (the Scholarship examination is an exception to this).

Any assignment or coursework due to be submitted at the reassessment session (regardless of the reason e.g. permission to defer etc.) must be submitted by the deadline set by the lecturer and by the start of the reassessment session, at the latest. Coursework or assignment submitted after this date will not be accepted or marked.

Students are assessed by a combination of continuous assessment and end-of-semester examinations. Their Junior Sophister (third year) result counts for 30% of their overall degree mark, while their Senior Sophister (fourth year) result counts for 70%.

Reference/Source:

Student Learning Development

Accessible Information Policy

College Statement on Artificial Intelligence and Generative AI in Teaching, Learning, Assessment and Research

- Aligned with the *College Statement on Artificial Intelligence and Generative AI in Teaching, Learning, Assessment & Research* (2024), the use of GenAI is permitted unless otherwise stated. Where the output of GenAI is used in a document or work output, this usage should be acknowledged and appropriately cited, as per Library guidelines on acknowledging and reference GenAI. <https://www.tcd.ie/academicpractice/assets/pdf/college-statement-on-genai.pdf>.

Capstone Project

The Capstone project — though defined differently by different subjects — is the common element across all degree exit routes and is weighted at 20 ECTS. It requires a significant level of independent research by the student.

The Capstone should:

- be an integrative exercise that allows students to showcase skills and knowledge which they have developed across a range of subject areas and across the four years of study
- result in the production of a significant piece of original work by the student
- provide students with the opportunity to demonstrate their attainment of the four graduate attributes: to think independently, to communicate effectively, to develop continuously and to act responsibly.

Students should refer to School and College policies and procedures with regards to research guidelines and ethical practices.

Reference/Source:

[Capstone website](#)

Examinations & Marking Scale

Examination Regulations – General

<http://www.tcd.ie/calendar/undergraduate-studies/general-regulations-and-information.pdf>.

Sitting the Examinations

Students are required to take the annual assessment component of all modules (this may constitute a formal examination, an essay, a project or some other mode of assessment) for which they are registered unless specially exempted by permission from the Senior Lecturer.

Coursework and Attendance at Classes

Students are required to attend classes and submit assessment work in all modules. A student is deemed *non-satisfactory* in a term when more than a third of required work/attendance in that term is missed. Any student who is deemed *non-satisfactory* in each of the two terms may, in accordance with the regulations laid down by the University Council, be refused permission to take examinations in that year.

To be allowed to sit the ordinary examinations a student must have paid the relevant College annual fees and must be in good standing. There is no examination fee payable. There is no notice required of intention to take an examination (the Scholarship examination is an exception to this).

Any assignment or coursework due to be submitted at the reassessment session (regardless of the reason e.g. permission to defer etc.) must be submitted by the deadline set by the lecturer and by the start of the reassessment session, at the latest. Coursework or assignment submitted after this date will not be accepted or marked.

1.1.1 Examination Timetables

Annual, Supplemental and Foundation Examination timetables are generated by the Examinations Office, situated within the Academic Registry, and made available to students approximately three weeks before the commencement of examinations. Once available, a personalised examination timetable will be available to students via their student portal my.tcd.ie under the 'My Exams' option menu. If you do not have access to the my.tcd.ie student portal, module timetables are available on the [Examinations Office website](#). Students must ensure that they are available for examinations for the duration of the examination session (see dates to remember). The onus lies with each student to establish the dates, times and venues of examinations. No timetable or reminder will be sent to individual students by any office.

Examination Venues

[Maps](#) are available advising examination venues and their location within the College.

Absence from Examinations

Medical Certificates

Students who consider that illness may prevent them from attending an examination (or any part thereof) should consult their medical adviser and request a medical certificate for an appropriate period. If a certificate is granted, it must be presented to the student's tutor and the relevant departmental office within three days of the beginning of the period of absence from the examination. The tutor must immediately forward the certificate to the Senior Lecturer's Office. Medical certificates must state that the student is unfit to sit examinations. Medical certificates will not be accepted in explanation for poor performance.

If you fall ill whilst taking an examination, seek assistance from the invigilator. If it is deemed necessary for you to attend the Medical Centre, and you receive medical certification as a result, your attempt at the examination will not be counted. In this way your tutor will be able

to apply for a deferral of the examination in question to another examination session. Your examination will not be incremented and when next you take the examination it will be considered your first attempt at the examination.

1.1.2 Individual papers

Individual examination papers are graded using the following classifications.

I	70 - 100	F1	30 - 39
II.1	60 - 69	F2	< 30
II.2	50 - 59		
III	40 - 49		

A mark of 30+ means a mark in the range 30–39 inclusive, 35+ means a mark in the range 35-39 inclusive, 40+ means 40–49 inclusive, 50+ means 50–59 inclusive, 60+ means 60–69 inclusive, and 70+ means 70-100 inclusive.

General regulations for undergraduate students

The general regulations that apply to all undergraduate students are outlined in the College Calendar (Part II). The following is only a brief summary of some important points and it is not meant to either replace or override the information in the College Calendar.

- All students must register for 60 ECTS credits and those must be divided equally between the two terms.
- Students will only be assessed on their registered modules.
- Results for examinations are published according to the following grades: I = 70 to 100, II.1 = 60 to 69, II.2 = 50 to 59, III = 40 to 49, F1 = 30 to 39, F2 = 0 to 29.
- In order to pass an individual module, students must achieve an overall score of 40% or higher.
- In order to pass the year, students must achieve an overall credit-weighted average of 40% and EITHER
 - pass each of their modules (by achieving 40% or higher in each of their modules)OR

- pass by compensation (by achieving 40% or higher in modules that are worth at least 50 ECTS credits and by achieving 35% or higher in their remaining modules).
 -
- Students who do not pass the year at the end of the Hilary term are required to present for reassessment at the beginning of the next Michaelmas term. These students will be reassessed in all failed components of the modules for which they obtained a score below 40%.
- Students who do not manage to pass the year at the reassessment session must repeat the year in full (i.e., they must repeat all their modules and all their assessment components).
- If necessary, a failed exam is reassessed by an exam in the reassessment session, and failed continuous The module is passed if the overall mark for the module is 40% or more. If the overall mark for the module is less than 40% and there is no possibility of compensation, the module will be reassessed as follows:
 - 1) A failed exam in combination with passed continuous assessment will be reassessed by an exam in the supplemental session;
 - 2) The combination of a failed exam and failed continuous assessment is reassessed by the supplemental exam;
 - 3) A failed continuous assessment in combination with a passed exam will be reassessed by one or more summer assignments in advance of the supplemental session.

These regulations apply since the academic year 2018/19.

Appeals

Students may appeal a decision of the Court of Examiners. The grounds for appeal must fall under *one or more* of the following categories: (i) the case of the appellant is not adequately covered by the ordinary regulations of the College, (ii) the regulations of the College were not properly applied in the appellant's case, or (iii) the appeal is *ad misericordiam*.

As the Appeal Committee meets to hear these appeals within one week of the publication of results, it is imperative that students, or authorised and adequately briefed deputies, are present to obtain and consider results as soon as they become available.

Appeals should be made via electronic form by a student's tutor or, if the tutor is unavailable to act, by the Senior Tutor.

Awards

The Moderatorship Course in Mathematics is a programme of undergraduate study leading to the award of a B.A. (Mod) in Mathematics. The calculation of the Honors Degree is based on the combined Junior and Senior Sophister years results, weighted at 30 per cent (Junior Sophister) and 70% (Senior Sophister). The B.A. is a level 8 award on the [National Framework for Qualifications](#)

The Moderatorship Course in Theoretical Physics is an integrated programme of undergraduate study leading to the award of a B.A. (Mod) in Theoretical Physics. The calculation of the Honors Degree is based on the combined Junior and Senior Sophister years results, weighted at 30 per cent (Junior Sophister) and 70% (Senior Sophister). The B.A. is a level 8 award on the [National Framework for Qualifications](#)

Information on Joint Honors Awards can be found on the [Joint Honors website](#)

Ordinary B.A.

Junior Sophister students who successfully complete and pass the Junior Sophister year if they do not proceed to the Senior Sophister year or Senior Sophister students who attempt and fail the Senior Sophister year and opt to not repeat the year are eligible for the ordinary B.A. The ordinary B.A. is a level 7 award on the [National Framework for Qualifications](#) Ireland.

References/Sources:

[National Framework for Qualifications](#)

[Trinity Pathways](#)

Graduate Attributes

Graduate Attributes

The Trinity Graduate Attributes represent the qualities, skills and behaviours that you will have the opportunity to develop as a Trinity student over your entire university experience, in other words, not only in the classroom, but also through engagement in co- and extra-curricular activities (such as summer work placements, internships, or volunteering).

The four Trinity Graduate Attributes are:

- To Think Independently
- To Act Responsibly
- To Develop Continuously
- To Communicate Effectively



Why are the Graduate Attributes important?

The Trinity Graduate Attributes will enhance your personal, professional and intellectual development. They will also help to prepare you for lifelong learning and for the challenges of living and working in an increasingly complex and changing world.

The Graduate Attributes will enhance your employability. Whilst your degree remains fundamental, also being able to demonstrate these Graduate Attributes will help you to differentiate yourself as they encapsulate the kinds of transversal skills and abilities, which employers are looking for.

How will I develop these Graduate Attributes?

Many of the Graduate Attributes are ‘slow learned’, in other words, you will develop them over the four years of your programme of study.

They are embedded in the curriculum and in assessments, for example, giving presentations and engaging in group work.

You will also develop them through the co-curricular and extra-curricular activities. If you help to run a club or society you will be improving your leadership skills, or if you play a sport you are building your communication and team-work skills.

Professional and Statutory Body Accreditation

The degree in Theoretical Physics TR035 is accredited by the Institute of Physics.

Student Feedback and Evaluation

Student evaluation of undergraduate modules and postgraduate courses is a requirement under College policy. To ensure the continuing quality of our degrees, the School of Mathematics receives feedback and evaluation through class representatives, the School convenor and evaluation surveys. The class representatives and School convenor participate in the meetings of multiple School committees. In addition to evaluation surveys at College level, the School organizes each term evaluation surveys for each module.

References/Sources:

[Student Evaluation and Feedback](#)

[Student Partnership Policy](#)

[Procedure for the Conduct of Focus Groups for Student Feedback on Modules and Programmes](#)

