



**Trinity College Dublin**

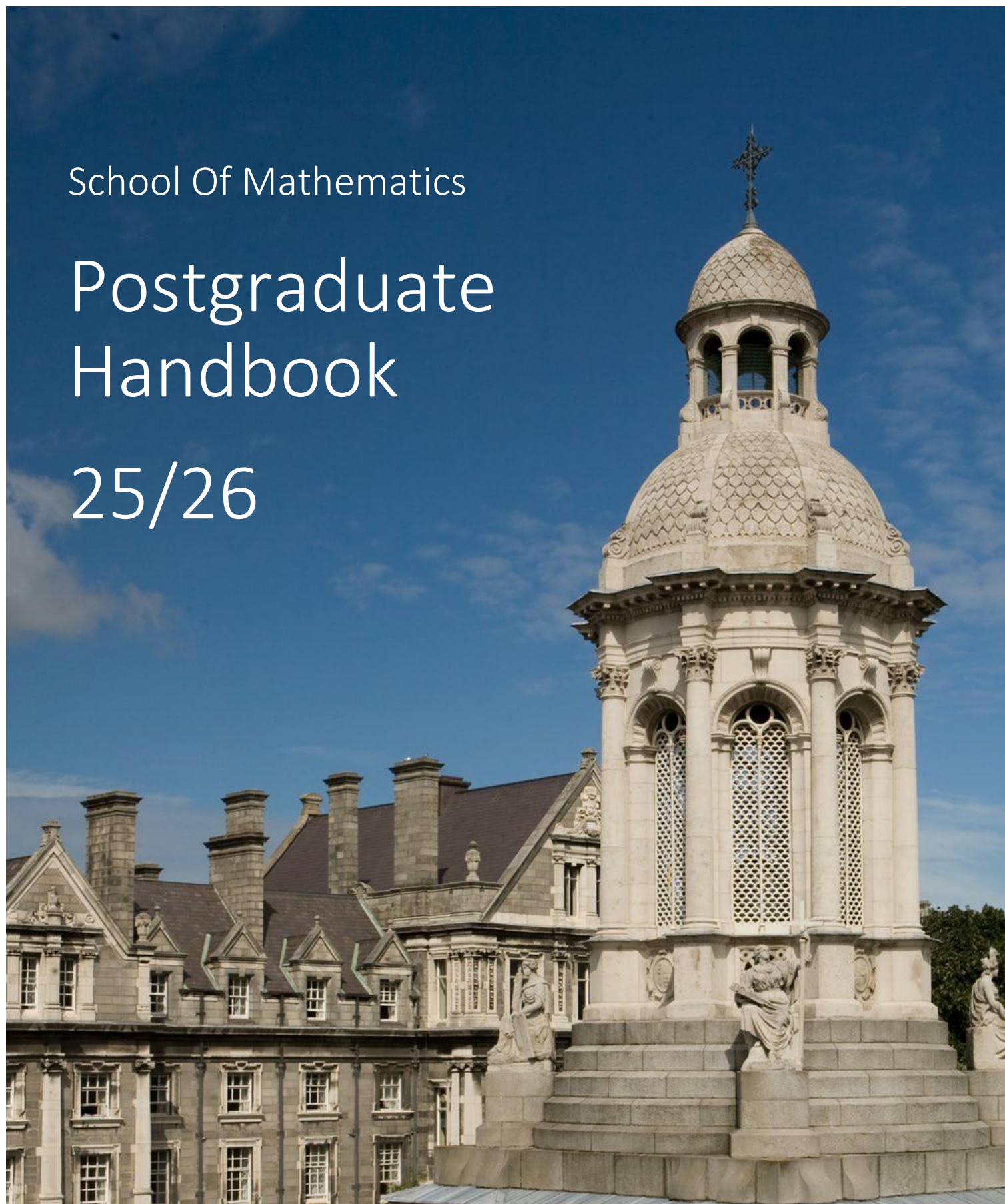
Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

School Of Mathematics

# Postgraduate Handbook

25/26



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## [Accessible Information Policy](#)

### 1. GENERAL REGULATIONS

The School of Mathematics and the closely associated Hamilton Mathematics Institute sustain a strong research programme in the two disciplines of the school, Pure Mathematics (PM) and Applied Mathematics and Theoretical Physics (AMTP). A central role is played by the postgraduate research students, and this handbook is meant as a guide for incoming and continuing students in the school, and their supervisors. The general rules governing research degrees at Trinity College Dublin<sup>1</sup> can be found in the University Calendar Part III. Students should familiarise themselves with Section I – General Academic Regulations for Graduate Studies and Higher Degrees (13 pages, articles 1-116) and Section II – Regulations for Higher Degrees by Research Only (7 pages, articles 1-72) of the Calendar. The purpose of this handbook is to provide additional information specific to the School of Mathematics, and to serve as a – hopefully useful – starting point for current students looking for information.

In the event of any conflict or inconsistency between the General Regulations published in the University Calendar and information contained in programme or local handbooks, the provisions of the General Regulations in the Calendar will prevail.

## [Calendar](#)

### [Calendar Part II, Part B: General Regulations and Information](#)

### 2. STUDENT SERVICES

[Student Services](#) has developed the handbook (embedded below) outlining the support services provided to undergraduate and postgraduate students. The handbook and further information is available from their website and in the [Student Services Handbook](#).

Want to make  
the most of your  
student  
experience?

[WWW.TCD.IE/  
STUDENTS/  
SUPPORTS-  
SERVICES](http://WWW.TCD.IE/STUDENTS/SUPPORTS-SERVICES)

**Administrative  
Support**

**Health and  
Wellbeing  
Support**

**Academic  
Support**

Here to  
help!

**Getting  
Involved**

**Financial  
Support**



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Supporting your student experience

Want to do  
better in your  
assignments?

[WWW.TCD.IE/  
STUDENTS/  
SUPPORTS-  
SERVICES](http://WWW.TCD.IE/STUDENTS/SUPPORTS-SERVICES)



Supporting your student experience

Want to keep  
yourself well while  
you're studying?

[WWW.TCD.IE/  
STUDENTS/  
SUPPORTS-  
SERVICES](http://WWW.TCD.IE/STUDENTS/SUPPORTS-SERVICES)

### **Student Counselling**

Mindfulness Monday  
Wellbeing Wednesday  
Support Groups  
Counselling

### **Health Centre**

GP service  
Nurses  
Physiotherapist  
Emergency Clinics

### **Sport**

Gym  
Fitness Classes  
Personal Trainers  
Swimming Pool

Here to  
help!

### **Healthy Trinity**

Healthy Eating  
Smarter Travel  
Sexual Health  
Healthy habits

### **Chaplaincy**

Christian Services  
Prayer Rooms  
Free lunch!

### **Student2 Student**

Peer mentoring  
Peer support

Supporting your student experience



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Want to get  
involved outside  
the classroom?

[WWW.TCD.IE/  
STUDENTS/  
SUPPORTS-  
SERVICES](http://WWW.TCD.IE/STUDENTS/SUPPORTS-SERVICES)

**Students'  
Union**

Sabbatical Officers  
Class Reps  
Campaigns

**Societies**

120 Societies

**Clubs**

50 Sports Clubs

Here to  
help!

**Volunteering**

**Entrepreneurship**

**Global Room**

Supporting your student experience



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The University of Dublin

Having cashflow problems?

[WWW.TCD.IE/STUDENTS/SUPPORT-SERVICES](http://WWW.TCD.IE/STUDENTS/SUPPORT-SERVICES)



Supporting your student experience

## 2.1 Academic Support

|                                                   |                                                                                                                             |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Student Learning Development                      | <a href="http://student-learning.tcd.ie/">http://student-learning.tcd.ie/</a>                                               |
| The Library                                       | <a href="http://www.tcd.ie/library/">http://www.tcd.ie/library/</a>                                                         |
| Maths Help Room                                   | <a href="http://maths.tcd.ie/outreach/helproom/">http://maths.tcd.ie/outreach/helproom/</a>                                 |
| Undergraduate Programming Centre                  | <a href="https://teaching.scss.tcd.ie/general-information/ugpc/">https://teaching.scss.tcd.ie/general-information/ugpc/</a> |
| Language Learning Centre                          | <a href="http://www.tcd.ie/slscs/clcs/lhc/">http://www.tcd.ie/slscs/clcs/lhc/</a>                                           |
| Centre for English Language Learning and Teaching | <a href="https://www.tcd.ie/slscs/english/">https://www.tcd.ie/slscs/english/</a>                                           |
| Disability Service                                | <a href="http://www.tcd.ie/disability/">http://www.tcd.ie/disability/</a>                                                   |
| Careers Service                                   | <a href="http://www.tcd.ie/Careers/">http://www.tcd.ie/Careers/</a>                                                         |

## 2.2 Health and Wellbeing Support

|                     |                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------|
| Student Counselling | <a href="http://www.tcd.ie/Student_Counselling/">http://www.tcd.ie/Student_Counselling/</a> |
| Health Centre       | <a href="http://www.tcd.ie/collegehealth/">http://www.tcd.ie/collegehealth/</a>             |
| Sport               | <a href="http://www.tcd.ie/Sport/">http://www.tcd.ie/Sport/</a>                             |
| Healthy Trinity     | <a href="http://www.tcd.ie/healthytrinity/">http://www.tcd.ie/healthytrinity/</a>           |
| Student2Student     | <a href="http://student2student.tcd.ie/">http://student2student.tcd.ie/</a>                 |
| Chaplaincy          | <a href="http://www.tcd.ie/Chaplaincy/">http://www.tcd.ie/Chaplaincy/</a>                   |

## 2.3 Getting Involved

|                         |                                                                                                                                               |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Students' Union         | <a href="http://www.tcdsu.org/">http://www.tcdsu.org/</a>                                                                                     |
| Clubs                   | <a href="http://www.tcd.ie/Sport/student-sport/">http://www.tcd.ie/Sport/student-sport/</a>                                                   |
| Societies               | <a href="http://trinitysocieties.ie/">http://trinitysocieties.ie/</a>                                                                         |
| Volunteering            | <a href="http://www.tcd.ie/civicengagement/">http://www.tcd.ie/civicengagement/</a>                                                           |
| Entrepreneurship/Portal | <a href="https://www.tcd.ie/portal/">https://www.tcd.ie/portal/</a>                                                                           |
| Global Room             | <a href="http://www.tcd.ie/study/international/trinity-life/global-room/">http://www.tcd.ie/study/international/trinity-life/global-room/</a> |

|                                  |                                                                                                                                                                                               |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Senior Tutor's Office*           | <a href="http://www.tcd.ie/seniortutor/students/undergraduate/financial-assistance/">http://www.tcd.ie/seniortutor/students/undergraduate/financial-assistance/</a>                           |
| Students' Union Welfare Loans    | <a href="https://www.tcdsu.org/welfare-equality/welfare-resources">https://www.tcdsu.org/welfare-equality/welfare-resources</a>                                                               |
| Bursaries/Prizes (Undergraduate) | <a href="http://www.tcd.ie/calendar/undergraduate-studies/">http://www.tcd.ie/calendar/undergraduate-studies/</a><br>(Part D: 11 - Prizes and other awards)                                   |
| Bursaries/Prizes (Postgraduate)  | <a href="https://www.tcd.ie/calendar/graduate-studies-higher-degrees/">https://www.tcd.ie/calendar/graduate-studies-higher-degrees/</a><br>(Section XI: Postgraduate Awards and Travel Funds) |
| Exhibitions                      | <a href="http://www.tcd.ie/calendar/undergraduate-studies/">http://www.tcd.ie/calendar/undergraduate-studies/</a><br>(Part D: 8 - Entrance Awards)                                            |
| Scholarships                     | <a href="http://www.tcd.ie/study/undergraduate/scholarships-funding/">http://www.tcd.ie/study/undergraduate/scholarships-funding/</a>                                                         |

## 2.5 Administrative Support

|                               |                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Your Tutor                    | <a href="http://www.tcd.ie/seniortutor/">http://www.tcd.ie/seniortutor/</a>                                           |
| Postgraduate Advisory Service | <a href="http://www.tcd.ie/seniortutor/students/postgraduate">http://www.tcd.ie/seniortutor/students/postgraduate</a> |
| Academic Registry             | <a href="http://www.tcd.ie/academicregistry/">http://www.tcd.ie/academicregistry/</a>                                 |
| School of Mathematics         | <a href="https://www.maths.tcd.ie/">https://www.maths.tcd.ie/</a>                                                     |

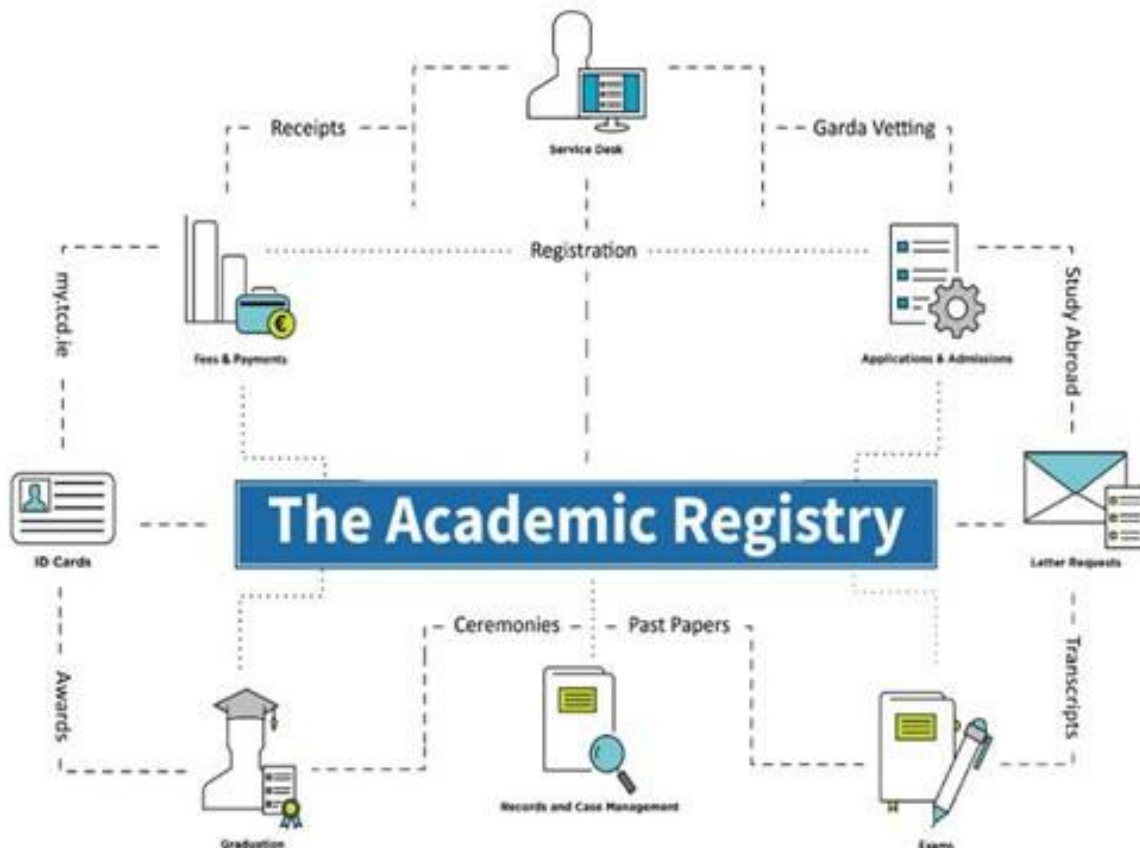
## 2.6 Postgraduate Advisory Service

The [Postgraduate Advisory Service](#) offers free, independent, and confidential support, guidance and advocacy to registered postgraduate students. They are here to provide support on any matter that may impact upon your time as a postgraduate at Trinity.

Some of the most common issues students come to PAS to discuss include: study-related stress or worry; concerns about academic progress; supervisor-relationship concerns; extensions and going off-books; queries regarding regulations and academic appeals; bullying; plagiarism and disciplinary cases, financial assistance.

## 2.7 The Academic Registry

The academic registry is a vital administrative port-of-call for many of the functions that cannot be provided by the School of Mathematics internally. More information is available in the schematic below, or <https://www.tcd.ie/academicregistry/>



## 2.8 Information on key campus locations

The classes involved in the School of Mathematics Postgraduate courses take place in the Hamilton building, on the east side of Trinity main campus. The School of Mathematics office is located in house 18, 0.6 (accessible via the house 17 stairs, ground floor). Many of the classes will be held within the Hamilton Building, rooms including the Salmon, Synge, Joly, and Maxwell theatres.

[Student Supports & Services](#)

[Interactive College Map](#)

## 2.9 Student Representation and Governance

Information on the TCDSU student representation structures are available at the following links:

[TCDSU](#)

[TCDSU Student Representation Overview](#)

## 2.10 Careers Information

Information on Careers:

[Trinity Careers Service](#)

# 3 Academic Writing

## 3.1 The Use and Referencing of Generative AI

*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 to inform a student's document or work output, this usage should be acknowledged and appropriately cited, as per [Library guidelines on acknowledging and reference GenAI](#). From an academic integrity perspective, if a student generates content from a GenAI tool and submits it as his/her/their own work, it is considered plagiarism, which is defined as academic misconduct in accordance with College Academic Integrity Policy.*

If the School wishes to put other restrictions in place around the use of Generative AI in particular modules, those restrictions must be explicitly stated in modules descriptions in the Blackboard VLE and/or in Programme Handbooks.

## 3.2 Academic Integrity and Referencing Guide

Regulations regarding Academic Integrity and referencing can be found at the following links: [Calendar Part II, B: General Regulations & Information, 'Academic Integrity'](#) and [Statement of Principles on Integrity Academic Integrity Policy](#)

The Library also provides guidelines regarding Academic Integrity available here, along with a cover sheet declaration for submitted assignments: [Library Guides - Academic Integrity](#) & [Coversheet Declaration](#)

# 4 General Information

## 4.1 Emergency Procedure

In the event of an emergency, **dial Security Services on Extension 1999**

Security Services provide a 24-hour service to the College community, 365 days a year. They are the liaison to the Fire, Garda and Ambulance services and all staff and students are advised to always telephone Extension 1999 (+353 1 896 1999) in case of an emergency.

Should you require any emergency or rescue services on campus, you must contact Security Services. This includes chemical spills, personal injury or first aid assistance.

It is recommended that all students save at least one emergency contact in their phone under ICE (In Case of Emergency).

It is also recommended that students download the SafeZone app to access alerts for closures in inclement weather, etc.

## 4.2 Data Protection

Information on Data Protection regarding your student data is available from:

[Data Protection for Student Data](#)

## 4.3 Explanation of ECTS Weighting

The European Credit Transfer and Accumulation System (ECTS) is an academic credit system based on the estimated student workload required to achieve the objectives of a module or programme of study. It is designed to enable academic recognition for periods of study, to facilitate student mobility and credit accumulation and transfer. The ECTS is the recommended credit system for higher education in Ireland and across the European Higher Education Area.

The ECTS weighting for a module is a measure of the student input or workload required for that module, based on factors such as the number of contact hours, the number and length of written or verbally presented assessment exercises, class preparation and private study time, laboratory classes, examinations, clinical attendance, professional training placements, and so on as appropriate. There is no intrinsic relationship between the credit volume of a module and its level of

difficulty.

The European norm for full-time study over one academic year is 60 credits. Within Undergraduate courses 1 credit represents 20-25 hours estimated student input, so a 10-credit module will be designed to require 200-250 hours of student input including class contact time, assessments and examinations. Within Postgraduate courses, 1 credit represents 25 hours estimated student input, so a 10-credit module will be designed to require 200-250 hours of student input including class contact time, assessments and examinations.

ECTS credits are awarded to a student only upon successful completion of the programme year. Progression from one year to the next is determined by the programme regulations. Students who fail a year of their programme will not obtain credit for that year even if they have passed certain component. Exceptions to this rule are one-year and part-year visiting students, who are awarded credit for individual modules successfully completed.

#### 4.4 Links to Further University Policies and Procedures

The following are links of where to find further information on University regulations, policies, and procedures that you may find useful as a student:

[All Academic Policies](#)

[Student Complaints Procedure](#)

[Dignity & Respect Policy](#)

[Equality Policy](#)

# 5 Structured Ph.D. Programme

In Trinity College Dublin all research students are considered part of a structured Ph.D. programme. At the basic level, the structure is provided by the establishment of a thesis committee for each student, and the requirement of an annual review in years 1 and 3, and the confirmation/transfer procedure in year 2, respectively; see below. As part of their education, students are expected to fully take part in the events organised by the school, as appropriate for their discipline. This includes attendance to public lectures, colloquia, research seminars, journal clubs or workshops, if relevant to their discipline or research project.

We note that the university-wide research student handbook states, on page 17, that “From the standpoint of the University, students must study a minimum of taught components equating to 10-ECTS credits.” We note that this statement is not supported by the official College regulations in the Calendar, which prevails over statements in any handbook. Hence, the only mandatory module in the School of Mathematics is the online module CA7000 on “Research Integrity and Impact in an Open Scholarship Era”. By default, every new postgraduate research student is registered for this module and must complete it, preferably in the first year but in any case prior to the confirmation procedure in second year.

With this proviso, there are a number of modules on offer across the College, which might be of interest. A comprehensive list is linked from here. Furthermore, the School of Mathematics runs 2 taught M.Sc. programmes, with some modules that may be of direct relevance to research projects of our students. The same applies to modules offered by other schools. It may thus be beneficial to attend some of these modules, even if this is not mandatory. However, before doing so, permission by the relevant lecturer or course coordinator should be sought by the student. It is also obvious that the students registered for a given taught M.Sc. programme take precedence in case of capacity issues. In any case, it is highly advisable to discuss any plans to attend a taught module with the supervisor, as the research project should always take priority.

## 5.1 Ph.D and M.Sc. register

*As per college regulations, research students normally register on the Ph.D. register, unless they directly aim for an M.Sc. degree by research, in which case they are placed on the M.Sc. register. The initial placement on the Ph.D. register is conditional and must be confirmed during the second year by the confirmation procedure. Likewise, students on the M.Sc. register, who decide to continue towards a Ph.D. degree, must undergo the transfer procedure. Both confirmation and transfer procedures have exactly the same format in the School of Mathematics; see below. A research student may decide to submit an M.Sc. thesis instead of going through the confirmation or transfer procedure. Furthermore, research students who do not pass the confirmation/transfer procedure may submit an M.Sc. thesis, depending on the state of their research project*

## **5.2 Duration of Studies**

The normal duration of a full time Ph.D. or M.Sc. research project is 4, respectively 2 years. For part time students different limits apply, cf. calendar part 2 for details. Students may interrupt their studies for parental leave, medical or other reasons. In this case a student can apply for an off the books period during which the clock stops as far as submission and other deadlines are concerned. It is important that any intention to go off books is communicated at the earliest possible stage and that the funding agency is contacted and informed about it. Usually, funding agencies are helpful and will strive to accommodate reasonable requests, however, failure to engage with them may result in losing the funding. It should also be noted that an off the books period means, in most cases, that the stipend payments are put on hold for this period, with no entitlements for payments covering e.g. parental leave. A thorough assessment of all aspects should therefore precede any such decision.

## **5.3 Start Dates**

The official start dates for new research students are either September 1st or March 1st. The majority of students start in September ("September entrants") in line with the academic year structure. The start date subsequently determines the deadlines for the annual review, the confirmation procedure and thesis submission.

## **5.4 Student Supervisor relationship**

The student supervisor relationship is central for a successful completion of a research degree. The Graduate Studies Office has issued an extensive best practice guide on this subject. At the beginning of the Ph.D. the student and supervisor agree on the basic terms of the supervision, e.g. weekly meetings and written summaries when appropriate milestones are passed. This agreement can remain either informal or formalised, e.g. using this template of a supervisor-research student agreement. Note that such an agreement is requested by the Dean of Graduate Studies for those students who are funded by a College award. This supervisor research student agreement was subject to heated discussions in the GSC in the Academic year 2023-24, when it was introduced. Its proponents argued that it just brings clarity as to what the expectations are from either side, with the signatures implying a certain level of commitment. Others said that the agreement was just stating the obvious, but its formalisation, together with required signatures, resembled very much a formal contract that could take on a life of its own and generate an undesirable entitlement culture. Whatever the take on this agreement, the items listed there may help to reflect on the various aspects in this relationship.

As with any relationship, there can be ups and downs and cases where some form of mediation by a third party may be required. We refer to the best practice guide mentioned above for further reading

## 5.5 Thesis Committee

For every postgraduate research student, a thesis committee will be created in the first few months following registration. To quote from the terms of reference: “A Thesis Committee shall be formed no later than six months from the first registration of a PhD student to monitor and advise in relation to the progress of the student throughout the lifespan of the structured PhD.” The supervisor, in discussion with the student, will nominate the thesis committee members and communicate their names to the DTLPG. A thesis committee consists of 2 academic staff members, normally (but not necessarily) selected among the members of the school of mathematics. At least one of the two should be an expert in a field close to the student’s research project. For more information consult the terms of reference. The thesis committee will have its rôle in the annual review and the confirmation/transfer procedure; see below.

## 5.6 Progression

Progression refers to a student’s transition from one year to the next, which is subject to either the annual review (years 1 and 3) or the confirmation procedure (year 2). Please consult the GSO webpage for general information.

### 5.6.1 Annual Review

At the end of their years 1 and 3 every postgraduate research student must go through the annual review. The Annual Review Form needs to be filled in and signed, beginning with the student and the supervisor. This form should then be forwarded to the thesis committee members, who will conduct an interview with the student about the research project and the plans for the next year. The thesis committee members will then complete the Annual Review Form with their feedback, sign and forward the completed form to the DTLPG, with a copy sent to the student and supervisor. The Annual Review Forms are then kept on file in the School of Mathematics. They may be requested by the College, e.g. by a College Court of Appeal.

Note that Annual reviews must be completed by 31 January or June 30 of a given Academic year, for March and September entrants, respectively. In particular, the notification of Academic Registry by the DTLPG, of the successful completion of the Annual Review (by these deadlines) is a necessary prerequisite for re-registration in the following year.

### 5.6.2 Confirmation/Transfer Procedure

In year 2 and with a June 30 (January 31) deadline for September (March) registrants, postgraduate research students are required to pass a procedure to either confirm them on the Ph.D. register or to transfer from the M.Sc. to the Ph.D register<sup>1</sup>. Only those students who aim for an M.Sc. by research are exempt from this procedure.

The confirmation/transfer procedure consists in:

- The submission, by email to the DTLPG, of a written report of ca. 30 pages describing the status of the research project and the plans for the future. The DTLPG will set a deadline for the report at the end of May for September entrants (early January for

March entrants). The thesis committee members will be asked to read the report.

- A Confirmation/transfer procedure form, similar to the Annual review form. It needs to be filled in and signed by the student and the supervisor and will later be completed and signed by the thesis committee members, with feedback on the confirmation/transfer report and the presentation.
- A presentation of their research of 20 minutes, followed by questions from the thesis committee members and the DTLPG, who will chair the presentation.

The completed Confirmation/Transfer form will be sent to the DTLPG, with copies to the student and the supervisor. It will be kept on file within the School of mathematics but may be requested by the College.

Possible outcomes of the confirmation/procedure are

- Recommendation to be confirmed on the Ph.D. register;
- Recommendation to be confirmed on the Ph.D. register subject to improvement of the transfer report within the 4 weeks following the decision.
- Recommendation not to continue on the Ph.D. register.

In the latter case the candidate may either attempt to obtain an M.Sc. degree, or decide to withdraw from postgraduate studies. The decision can be appealed though, and in this case an appeals subcommittee will be set up by the DTLPG of the school.

## **5.7 Thesis Submission**

Postgraduate research students who plan to submit a thesis are strongly advised to discuss this with their supervisors at an early stage and allow enough time for the supervisor to provide feedback on a draft thesis. While the submission is at the discretion of the student alone, it can be embarrassing, if an external examiner is made to read through a poorly written thesis. The student should carefully read through the College calendar regulations, in order to make sure that all necessary declarations are included and that all the typesetting rules are followed and that the format is according to College requirements. Note that the submission of a thesis may have practical consequences for funding: for instance, a College studentship is discontinued after submission of the thesis. Hence in some cases a delay of the submission may be advisable. Furthermore, it is good practice (and often mandatory) to include an acknowledgement for any funding or other resources received to carry out the research project.

### **5.7.1 Academic Integrity**

One of the required declarations in the thesis relates to academic integrity; the Ph.D. candidate states that the thesis is their own work and that all work and ideas by others are properly referenced and acknowledged. Academic integrity is of utmost importance and students and supervisors should familiarise themselves with the relevant section in the calendar part III (items 50–55), and with the College's Academic Integrity policy, which replaces older policies on plagiarism. This webpage of the Academic Affairs office provides further links. A research thesis is a publication and should adhere to the same standards as a research paper. Depending on the research community, there may be differences in conventions and it is the task of the supervisor to convey the proper way of referencing

and citing the work of others pertaining to their field of research. If plagiarism or other breaches of academic integrity are detected, even at a future stage, there may be severe consequences

#### 5.7.2 Intention to submit, deadlines and Dean's grace

In anticipation of a thesis submission, the postgraduate research student should submit the Intention to Submit Form, no later than 1 month before the planned submission, by email to the DTLPG with copy to [ethis@tcd.ie](mailto:ethis@tcd.ie). Once an intention to submit is received, Academic Registry will set up a one-drive folder with documents for the examiners. This folder will also be used to share the thesis with the examiners.

Deadlines for the submission of the thesis are, in principle, at the end of February (March entrants) and end of August (September entrants). However, a 1-month extension, known as Dean's grace, is nowadays granted automatically, so the true deadlines are shifted by 1 month to 31 March and 30 September, respectively.

For further details and explanations please consult the GSO webpages, where a timeline is given and links to the regulations at the bottom of the page.

### 5.8 Nomination of examiners

Once a thesis is submitted the Graduate Studies Office (GSO) notifies the DTLPG of the school and requests the nomination of both an internal and an external examiner, preferably within 2 weeks. The DTLPG in consultation with the supervisor identifies suitable examiners and submits the nomination form to the GSO, together with a short CV of the nominated external examiner, which details the experience with supervision of Ph.D. students and includes a list of recent (i.e. last 5 years) publications. The same applies for the internal examiner if they are not a staff member of Trinity College Dublin. The Dean of Graduate Studies will normally approve the examiners provided

1. the examiners have demonstrated experience in postgraduate research supervision (hence the need for a CV);
2. the examiners are not closely linked to the supervisor or the candidate (e.g. through direct collaboration and common publication during the last 5 years; hence the need for a list of publications);
3. The external examiner should not have been an examiner in the last 3 years for TCD. If this is not obvious to the supervisor, confirmation should be sought by the intended nominee.

Approval of the examiners by the Dean of Graduate Studies is normally obtained within a week or so, however, it may occasionally take longer. In time-critical situations it may be possible to pre-approve an examiner, in order to shorten the time between thesis submission and the viva voce. Once the examiners are approved, the internal examiner is in charge of the organisation and will consult with the candidate and the extern regarding date, time and venue for the viva voce.

## 5.9 Viva Voce

The viva voce in the School of Mathematics is organised as follows, for both Ph.D. and M.Sc. by research candidates:

- The internal examiner is responsible for organisation of the viva voce, in particular for choosing a suitable date and place.
- The viva voce is chaired by the DTLPG or their nominee.
- The viva begins with a 20 minutes public presentation by the candidate of their thesis. At the end of the public presentation the general public may ask questions to the candidate. The public is then asked to leave; only the candidate, the chair and the 2 examiners remain in the room. The supervisor may choose to attend the viva voce as an observer if the candidate agrees. If present, the supervisor may be consulted by the examiners for clarification during the viva voce.
- There is no explicit time limit on the duration of a viva voce. The rôle of the chair is to ensure that the candidate is treated fairly and to clarify College regulations if necessary.
- At the end of the viva voce the candidate is asked to leave the room (together with the supervisor, if present). The examiners then discuss both the candidate's performance at the viva voce and the thesis and reach their conclusions. In theory, the possible outcomes are
  1. The degree is awarded for the thesis as it stands;
  2. The degree is awarded subject to minor corrections made to the thesis;
  3. The degree is awarded subject to a major revision of the thesis;
  4. A lower degree is awarded, possibly subject to minor corrections to the thesis;
  5. fail.

In practice, the second outcome with minor corrections is most common, by far.

- The candidate is asked back to the room and informed of the outcome.
- The examiners had written separate pre-viva reports on the thesis, which were exchanged among them and sent by email to [gsothes@tcd.ie](mailto:gsothes@tcd.ie). Now they compile a common post-viva report taking account of the candidate's performance at viva voce and submit to the Graduate Studies Office as soon as possible (preferably within 24 hours). The Graduate Studies Office then sends a letter of notification to the candidate. If minor corrections are required (this is the most frequent outcome), the internal examiner provides a list with the minor corrections, and the candidate has 2 months from the date of notification for their implementation. Once the internal examiner is satisfied that all corrections have been implemented they notify the Graduate Studies Office that the final version of the thesis can be submitted. in case a major revision is required, the candidate must re-register for a period of up to 6 months (this carries a fee) and the thesis is re-examined by the external examiner after the revision has been carried out.

# 6 Financial Matters

## 6.1 Funding through fellowships, research grants and College awards

Most students in the School of Mathematics receive some kind of funding, which covers their tuition fees and a student stipend. Current sources of funding are

- EU: the school has a successful record in obtaining EU funding for postgraduate students, either through Marie Curie individual fellowships or through networks with other universities.
- Irish funding through Research Ireland as the merged entity consisting of the Irish Research Council (IRC) and Science Foundation Ireland (SFI) is now called. Funding for Ph.D. students is either obtained through the former IRC schemes or as part of research project as formerly with SFI.
- College awards: In the past few years, 1 College award per year was given to each school in TCD and then assigned following a competitive recruitment process. Further College awards are awarded by the Dean of Graduate Studies according to criteria that may vary from year to year (e.g. theme based, interdisciplinary projects, etc.).
- IBM research Ireland has started a cooperation with TCD and some students are funded through this initiative.
- Occasionally, international students bring their own scholarship, funded e.g. by the government of their home country.
- The Hamilton scholarships are funded by benefaction funding to TCD or the school of mathematics.

Note that College awards cover a stipend of 25, 000 Euros per year and the fees. This is matched by School awards and the Hamilton scholarships. However, despite intense lobbying efforts, other funding sources fall short of this amount and also do not always cover the full fees. The college is running a pilot scheme, now in its second year, whereby the fee differential is waived by College, for new grants funded by Irish funding agencies (formerly SFI and IRC, now merged to Research Ireland). A decision by College whether this will continue to include the grants held by external institutions (like the Dublin Institute of Advanced Study) has not yet been made as of November 2024.

The School of Mathematics has committed to top up stipends from funding agencies to 25, 000 Euros per year, in return for the student to assist with teaching 1 module per year. The same is required from recipients of College and School awards, and from the Hamilton scholars.

## 6.2 Teaching by Postgraduate Students

As is typical for mathematics departments in the UK and Ireland, the TCD school of mathematics generates a major part of its income from service teaching, ie. the teaching of students from other schools and departments. These are often large groups (e.g. engineering or bio-sciences students) with hundreds of students. Weekly tutorials for groups of 40-50 students are held to discuss homework assignments. Postgraduate research students are teaching such tutorial groups and are involved in the marking of both homework assign-

ments and exams in the fresher years. They also conduct tutorials and mark homework assignments for the students of all years in the school's own disciplines, Pure Mathematics and Applied Mathematics and Theoretical Physics.

Hence, postgraduate research students in the school make a very important contribution to the school and substantially contribute to its functioning. Aside from generating additional income, the experience is also valuable and may enhance the student's employment opportunities at a later stage. However, it should be clear that the research project for the Ph.D. must be prioritised, and it may be wise to abstain from teaching in the final stages of the thesis write-up, or during a critical phase of the Ph.D. project. In general, it is a good idea to inform the supervisor of teaching duties, as e.g. the marking of exams is time critical and may require a full time commitment for up to a week during which no progress on the research should be expected.

In general, work by the students is allocated by the school's office, who maintain a list of all postgraduate students wishing to avail of such opportunities and assign teaching/marking duties in coordination with the relevant lecturers. The work is generally paid at an hourly rate, with the lecturers signing off on the hours worked. An exception are those students who are in receipt of a College award, a Hamilton scholarship or other school funding for their stipend: they are, in return, required to assist with the teaching of 1 module per year without being paid the hourly rate, which will only apply to the work done beyond this requirement. The same applies to students who avail of the top up of their stipend by the School of Mathematics.

### **3.3 Travel to Conferences**

Students travelling on college business should remember to fill in the travel insurance form before their trip. Students funded through a research grant will often have a budget available for travel to conferences, workshops or summer schools in their discipline. Those who do not have a travel budget can make a case and apply to the College's Travel grant (beware of the deadlines). In any case, students should try and minimise the costs; for instance, some conference organisers have a small budget to enable student participation, e.g. through reduced/waived conference fees or subsidised accommodation. For reimbursement there are various rules that apply. In particular, the college has a preferred supplier list which includes the travel agency "Club Travel". You can go through them if it is really required, however, it is often much better to e.g. book a flight yourself and later get reimbursed. Note that you can do this by directly buying from the airline's web page. Beware, as buying from online travel agencies (such as expedia, opodo, etc.) would be in breach of the college policy and the expense may then not be eligible for reimbursement.