

GEOLOGY DEPARTMENT REQUIREMENTS AND PROCEDURES FOR RESEARCH STUDENTS

1. INTRODUCTION

This document details the administrative procedures for research students (research M.Sc. and Ph.D.) in the Geology Department. It complements the booklet produced by the Geology postgrads (A Guide to What's What and Who's Who in the TCD Geology Department): the booklet provides a very useful introduction to all aspects of postgrad life in the department, while this document focusses on more formal procedures relating to academic participation and progress. It should be read in conjunction with the School of Natural Sciences Postgraduate Research Student Handbook and the College Calendar, Part III (Graduate Studies and Higher Degrees), available online at <http://www.tcd.ie/calendar/graduate-studies-higher-degrees/> – note that the College Calendar is the definitive source of information on College regulations relating to postgraduate students.

2. REQUIREMENTS FOR ALL RESEARCH STUDENTS

2.1 Participation in research seminars and discussion groups:

All Geology research students (M.Sc. and Ph.D.) are expected to participate actively in the academic life of the Geology Department and the School of Natural Sciences. Resident research students must attend the lunchtime research seminar series which runs weekly during teaching terms, and keep a seminar series journal. They are also expected to participate in appropriate workshops, discussion groups etc. within the department (e.g. Geochemistry and Tectonics discussion groups) and wider School and College events (such as the postgraduate "Lightning Talks" during the annual School research evening). Where the research student is based off the main campus for extended periods, it is recognised that regular participation in such activities may not be feasible.

2.2 Presentation of Research:

All Geology postgraduate students should aim to give oral presentations of their research as and when they are in a position to do so, either within College, within Ireland or at research meetings abroad. For Ph.D. students, it should be noted that preparation and presentation of a research seminar, forms part of the Core Research Skills (Natural Sciences) 10 ECTS module, required for a structured 4 year Ph.D. (See School of Natural Sciences Postgraduate Research Student Handbook Appendix 1).

2.3 Annual progress reports

The College requires that annual progress reports must be completed by all research students and their supervisors and submitted before re-registration each year. The School of Natural Sciences procedures for these forms are that the student completes Part 1 of the form (self-assessment), passes it to the supervisor to complete Part 2 (Supervisor's comments), and then the student is responsible for submitting the form to the School Postgraduate Administrator (Frances Leogue) in the School office by 30 June for September registrants and by 31 January for March registrants. N.B.: Academic Registry has recently tightened the regulations with respect to these Annual Reports, and re-registration will be refused if a report has not been submitted by the appropriate deadline.

3. M.Sc. RESEARCH STUDENTS

Postgraduate students undertaking an M.Sc. by research in the Geology Department are expected to participate in departmental activities as outlined in section 2 above.

In some circumstances, an application may be made to transfer from the M.Sc. research register to the Ph.D. register after 12-18 months. Where transfer to the Ph.D. register is contemplated, it should be noted that this is dependent on a number of factors such as the academic calibre of the student, the appropriateness of the project for doctoral level research and availability of the necessary research funding. University procedures for transfer to the Ph.D. register are described in the College Calendar, Part III, <http://www.tcd.ie/calendar/graduate-studies-higher-degrees/introduction-and-general-regulations.pdf>. The Geology department procedures follow the same pattern as for Ph.D. confirmation, and are described in sections 5 and 6 below.

M.Sc. research students do not normally have advisory panels as described for Ph.D. students in section 4 below. However, if the research student and supervisor decide over the course of the first year of the research M.Sc. that the student should apply for transfer to the Ph.D. register after 12-18 months, it is recommended that a research advisory panel should be established once this intention is agreed, following the procedures in section 4 below. Formation of the research advisory panel does not imply a recommendation to transfer to the Ph.D. register: this recommendation can only be made by the Ph.D. transfer panel in accordance with the College Calendar as above, but a meeting of the advisory panel and assessment of the literature review and research aims and objectives may be of assistance to the student and supervisor in providing an initial informal evaluation of the appropriateness of transfer.

4. Ph.D. ADVISORY PANELS

4.1 Purpose of the panel:

Each student registered for a Ph.D. in the Geology Department is required to have an advisory panel. This panel consists of two staff members who will meet periodically with the research student and their supervisor (and co-supervisor if any) in order to discuss progress with the research project. The purpose of the panel is to provide an opportunity for discussion, debate and constructive criticism at key points during the project. The panel should be established by the Supervisor soon after the student's first registration, and will meet initially approximately six months after registration to discuss the student's literature review and research aims and objectives (see below).

The advisory panel members may also potentially serve on the Ph.D. confirmation panel, which meets between 12 and 18 months after first registration to formally evaluate the student's progress and to make recommendations regarding continuation on the Ph.D. register, but it should be noted that Ph.D. Confirmation is a separate formal process of the university, and that the confirmation interview differs in several key respects from normal advisory panel meetings (see below). The advisory panel will also normally meet at the start of the student's third year on the research register, in order to discuss progress and publication of research findings.

As research students must attend the lunchtime research seminar series, it is recommended that the student also brings his/her seminar series journal to any advisory panel meetings.

4.2 Composition of the panel:

1. The membership of the advisory panel should consist of two TCD staff members eligible to supervise research students. These will normally be members of the Geology Department but other TCD staff members can also be considered.
2. The membership should be agreed by the supervisor and student in consultation with the Geology Postgraduate Coordinator.
3. It should be noted that membership of advisory panels will need to be spread across different staff members so students and supervisors should consider at least three potential members in the first instance.
4. Panels should normally be finalised within 3 months of registration (i.e. end of November for September registrants and end of May for March registrants).
5. A change in panel membership can be requested by the student and supervisor during the course of the research project if circumstances change (e.g. a change in the direction of the research project).

4.3 Initial meeting of the panel:

1. The first meeting of the panel should take place following the submission of the student's literature review approximately 6 months after first registration. For September registrants, this will normally mean meeting in March, and for March registrants this will normally mean meeting in September.
2. The meeting date should be arranged with the panel by the student and supervisor, and the literature review should be sent by the student to the panel members at least two weeks before the meeting.
3. The meeting is intended to be an informal and constructive discussion of the background to the research project and of how the proposed research aims and objectives relate to existing scientific knowledge. This should involve a free and open exchange of ideas between the student, supervisor and panel members. The student and supervisor should note any key points and recommendations arising from the meeting and should circulate a copy of these to the panel members.
4. The Geology Postgraduate Coordinator does not attend the meeting (unless present as a supervisor or panel member) but should be notified by the supervisor once the meeting has taken place.

4.4 Initial literature review:

The literature review should be prepared by the student during the first six months of their registration period. September registrants should normally submit the review by 1st March, and March registrants by 1st September. If submission of the review needs to be delayed for any reason, the supervisor should notify the Postgraduate Coordinator and panel members of the proposed alternative submission date and justification for the delay. A general template can be found in the Geology Postgraduate Folder on the Shared Google Drive. It should include the following sections:

1. *A statement of the research aims and objectives:* Provide a concise description of the main research aim(s) and specific objectives, including hypotheses where appropriate. Explain briefly how the research aims and objectives relate to existing scientific knowledge and how they will provide an appreciable, original contribution to knowledge. Length should be roughly one page.
2. *Critical Evaluation:* This is the actual review, consisting of a general introduction and critical evaluation of published literature relating to the Ph.D. research topic, and of

“grey” and unpublished literature if appropriate. Length should be roughly 4000-5000 words excluding the reference list.

3. *Next Steps and Future Work:* This section should include a short synopsis of research achieved during the first six months of the project and of research objectives for the next six months. Length should be one page, can be in the form of bullet points.
4. *References:* The reference list should be compiled in EndNote and the references in the review should normally be cited and listed according to the Harvard system.

The report should be in Times New Roman 12-point font, and must include section numbers and page numbers. It must be carefully proofread and spellchecked before submission.

Note the following quote from the College Calendar, which should be borne in mind from the outset of the research: “*A doctoral thesis must show evidence of rigour and discrimination, appreciation of the relationship of the subject to a wider field of knowledge/scholarship, and make an appreciable, original contribution to knowledge; it should show originality in the methods used and/or conclusions drawn, and must be clear, concise, well written and orderly and must be a candidate’s own work.*”

The document must be submitted to the advisory panel members by email as a Word document or pdf < 12 MB in size (i.e. small enough to be transmitted through the College email system). Panel members may also request a hard copy of the review from the student.

5. Ph.D. CONFIRMATION AND TRANSFER PROCESSES

All students registered for a Ph.D. in TCD are required by the university to undergo a stringent process of academic assessment to confirm their continuation on the Ph.D. register, within 18 months of first registration. Students registered for a research M.Sc. seeking to transfer to the Ph.D. register (also within 18 months of registration) must undergo a transfer process which is similar to the confirmation process. The College procedures for both confirmation and transfer are detailed at: <http://www.tcd.ie/calendar/graduate-studies-higher-degrees/introduction-and-general-regulations.pdf>

N.B.: The Academic Registry will now refuse confirmation or transfer of a student if a panel meeting has not been completed within 18 months and the confirmation/transfer form signed and returned to AR. If the deadline is missed, then confirmation/transfer can only be achieved by making a case directly to the Dean of Graduate Studies.

The detailed process within the Geology Department for implementing these College procedures is described below.

1. A Ph.D. confirmation/ transfer panel is appointed for each Ph.D. confirmation / transfer candidate. This panel consists of a chair (normally the Geology Postgraduate Coordinator, or the Head of Geology in the case of students supervised by the Postgraduate Coordinator) and two TCD academic staff members who are eligible to supervise, at least one of whom should have acknowledged expertise in the subject area of the student’s research (or in a cognate field). When necessary, an external discipline expert may also be appointed. Typically, the panel will be the same as for the earlier literature review.
2. The Supervisor should suggest panel members in consultation with the Geology Postgraduate Coordinator.

3. The student prepares a Confirmation / Transfer Report according to the guidelines below, and this should normally be submitted to the Ph.D. confirmation /transfer panel members 14 months after registration (i.e. by 1 November for September registrants and by 1 May for March registrants).
4. A Ph.D. confirmation / transfer interview is arranged by the Supervisor, in consultation with the Geology Postgraduate coordinator. This interview involves the candidate and the panel members as in 1 above, with the supervisor (and TCD co-supervisor if any) attending as observers. External advisors / external co-supervisors do not normally attend, but may be included as observers if appropriate.
5. Following the interview, the panel makes a recommendation for one of the following, as per the College Calendar:

(i) PhD confirmation:

- (a) continuation on the Ph.D. register,
- (b) continuation on the Ph.D. register after some minor changes have been made to the Ph.D. confirmation report,
- (c) continuation on the Ph.D. not recommended at this time: a new report to be written and confirmation interview to be held again as soon as possible thereafter,
- (d) a recommendation to change to the general Masters register to submit a Masters thesis,
- (e) not to continue as a postgraduate research student.

(ii) Ph.D. transfer:

- (a) transfer forthwith,
- (b) transfer after some minor changes have been made to the transfer report,
- (c) transfer not recommended at this time: a new report to be written and transfer interview to be held again as soon as possible thereafter,
- (d) continue on the Masters register to complete a Masters thesis,
- (e) not to continue as a research postgraduate student.

6. The interview should be scheduled to last one hour. If this proves insufficient time for the panel to reach an agreed recommendation, the interview may be extended or reconvened at a later date.
7. The supervisor is responsible for minuting the interview: they should circulate a draft report on the interview to the confirmation / transfer panel within a week after the interview for comment / amendment. The draft report should record the recommendation of the committee, and where changes to the confirmation / transfer report are required, these should be clearly documented. Following any amendments requested by the panel, the report is then forwarded to the Ph.D. confirmation / transfer candidate by the Geology Postgraduate Coordinator.

8. Once any requested changes have been completed to the satisfaction of the panel, the Geology Postgraduate Coordinator notifies the candidate and supervisor. The supervisor completes and signs a Ph.D. Confirmation Form or Ph.D. Transfer Form as appropriate (available at http://www.tcd.ie/Graduate_Studies/education-policy/academic-standing/confirmation-phd-register/ and http://www.tcd.ie/Graduate_Studies/education-policy/academic-standing/transfer-phd-register/) and submits it to the Geology Postgraduate Coordinator, who signs it and forwards it to the School Postgraduate Administrator together with written confirmation that the Ph.D. confirmation / transfer process has been satisfactorily completed. The form is then submitted to the Dean of Graduate Studies.

6. Ph.D. CONFIRMATION / TRANSFER REPORT

The report which the candidate must submit as part of the Ph.D. confirmation or transfer process described above should conform to the following guidelines:

The length of the report, excluding the reference list and appendices, should be 2000-3000 words. It should include the following sections:

Abstract: This should summarise the research aims, methods, findings to date and anticipated outcomes. (300 words maximum)

1. **Aims and objectives** : Provide a concise description of the main research aim(s) and specific objectives, including hypotheses where appropriate. Explain briefly how the research aims and objectives relate to previous research and how they will provide an appreciable, original contribution to knowledge. (This section can refer to the literature review prepared for the first Advisory Panel meeting, which should be included in an appendix, see below).
2. **Methodology:** Describe the research methods (including field, laboratory and data analysis techniques as appropriate). Cite references for standard / widely used methods rather than providing details, and focus on any new methods or modifications you're using.
3. **Results to date:** Summarise the key findings to date, using tables and figures where appropriate, and provide a preliminary interpretation of the results.
4. **Difficulties encountered:** Describe any difficulties encountered, e.g. with research methodologies including equipment issues, and how these have been or will be overcome.
5. **Next steps and future work outline:** Provide a workplan both for the immediate future and for the remainder of the Ph.D. (In the case of Ph.D. transfer reports, this refers to a workplan both for the immediate future and for completion of a Ph.D. assuming that transfer is granted). This workplan should include a list of tasks and milestones and a Gantt chart. Where appropriate, discuss contingency plans if the anticipated results are not obtained.
6. **Publications** : List publications submitted or accepted to date (if any) and provide provisional titles and brief descriptions for anticipated publications.
7. **Conference abstracts:** include any abstracts of talks or posters presented in any conference (local, national, international).
8. **Other:** For example, comment on any additional research or training undertaken or planned which is not part of the core Ph.D. research described in the report.
9. **References:** The reference list should be compiled in EndNote, Mendeley or any similar software and the references in the report should normally be cited and listed

according to the Harvard system. (Note that the reference list for the literature review in the appendix should be included in that appendix).

10. Appendices:

- The literature review prepared for the first Advisory Panel meeting should be included as an appendix (amended / updated if appropriate based on feedback from that meeting).
- Tables or graphs of data can also be included in an appendix if these are necessary or helpful to the confirmation / transfer panel. However the main results to date should be presented and discussed in the main body of the report (i.e. section 3 above).

The report should be in Times New Roman 12 point font, 1.5 line spacing, and must include section numbers and page numbers. It must be carefully proofread and spellchecked before submission.

As noted in the College Calendar, “*the student must ensure that a draft of the confirmation / transfer report is made available to the Supervisor with sufficient time for the Supervisor to read it and provide comments.*” The timeline can be agreed between the student and supervisor, but it is recommended that the draft report should be produced at least one month before the submission deadline, i.e. by 1st October for September registrants and by 1st April for March registrants, in order to allow adequate time both for feedback from the supervisor and for the student to make alterations based on that feedback.

The confirmation / transfer report must be submitted to the panel by email as a Word document or pdf <12Mb in size (i.e. small enough to be transmitted through the College email system). Panel members may also request a hard copy of the report from the student.

7. SUBMISSION OF Ph.D. AND RESEARCH M.Sc. JOURNAL PUBLICATION-BASED THESES

The University is in the process of establishing the rules and regulations for the option of submission of a thesis primarily by publication. The School of Natural Sciences is also presently establishing more specific guidelines in this respect, relevant to the scientific research carried out within it. However, in the meantime, the Department of Geology has agreed the basic guidelines that should be followed by a student who wishes to submit a Ph.D. or M.Sc. thesis based primarily on their Journal Publications. These are outlined below and should be used informally until such time as the final rules are published. It should be stressed that submission of Journal Publication-based Ph.D./M.Sc. Theses is still optional and this in no way replaces the traditional style of thesis at this time.

The current regulations (academic year 2019-20) for research MSc and PhD theses are available in TCD calendar, part III, sections 100-114 (pages 27-29). In particular, section 102 states that:

“A thesis submitted for a higher degree may be based on, or include, writings already published by the candidate, if the studies from which they derive have been carried out during the period of registration on the higher degree register. Such writings must be fully integrated into the body of the thesis.”

Also, as stated in section 107 of TCD calendar, part III, any thesis must contain immediately after the title page the following declaration signed by the author:

"I declare that this thesis has not been submitted as an exercise for a degree at this or any other university and it is entirely my own work."

"I agree to deposit this thesis in the University's open access institutional repository or allow the Library to do so on my behalf, subject to Irish Copyright Legislation and Trinity College Library conditions of use and acknowledgement."

In the case of a thesis for which the work has been carried out jointly; the declaration must have a statement that it includes the unpublished and/or published work of others, duly acknowledged in the text wherever included.

Department of Geology guidelines for Ph.D./M.Sc. Thesis submission based on publications:

1. The decision to opt for a thesis submission based on publications should be made jointly by the candidate and the supervisor(s). Therefore candidates should ideally inform their supervisors their intention to submit their theses based on publications at least one year before the submission deadline.
2. The thesis must still have a common thread and logical order throughout.
3. The student should confer with his/her supervisor on the most appropriate approach to layout of the thesis. However, the thesis should include:
 - i. **A general introduction** that situates the research in a broader context and explains its significance and relevance. This general introduction should include (a) a review of the relevant literature, (b) an explanation of the scope and objectives of the work, (c) an outline of the particular manuscripts prepared and how they tie together to address the over-arching hypothesis of the thesis and.
 - ii. **Publications (one per chapter)**. The typical publications will be in the form of peer-reviewed journal articles or equivalent scholarly outputs (e.g., book chapters, peer reviewed conference proceedings). Ideally, a PhD thesis should consist of a minimum of three first-author publications, while a MSc thesis should consist of a minimum of one first-author publication. The student should be the main contributor of all first-author publications and these should not report the same data or findings to separate readerships. PDF versions of already published articles or other outputs can be included in the chapters.
 - iii. **A lay abstract for each of the publications**. This lay abstract should be written in addition to the original publication abstract (usually geared to a specialist scientific reader) should ideally be no longer than 300 words and should consist of a brief summary of the research paper explained in simple terms to readers who do not have prior knowledge about the subject.
 - iv. **A final chapter** consisting of a summary with the main conclusions to tie together the full work. This chapter can include a section with recommendations for future work.
 - v. **References, appendices and supplementary information**. These can be integrated at the end of each chapter OR consolidated at the end of the thesis book, at the discretion of the student and the supervisor. Appendices and supplementary information should consist of raw data, calculations and detailed methods and they are key evidence of the student's decision making, numeracy, etc. Also all conference abstracts of talks of posters presented in

any conference (local, national, international) should be included in the appendices.

4. Ideally, a publication-based thesis should include at least one already published work (*on-line* or in paper format) in a peer-reviewed academic journal or equivalent scholarly output. The other publications can be *in press*, *submitted*, or *ready/planned for submission*.
5. Publications which can be included are limited to those which are based on work undertaken during the student's period of registration.
6. For each publication, the student should include the role of the first author. If publications are included where the student is NOT the first author, then a clear statement regarding the input of co-authors should be also included. Publications in which the student is not the first author can count as thesis chapters assuming that the student has been a major contributor to the publications.
7. Taking into account that the purpose of the viva voce examination will be to establish that the work of the candidate is of a sufficiently high standard to merit the award of the PhD degree, all elements submitted within the thesis (including already published materials) will be subject to examination. Therefore, the submission of a thesis based on publications does not necessarily predetermine the outcome of the viva voce examination process.

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