

A GUIDANCE DOCUMENT FOR POST-GRADUATE STUDENTS AND THEIR RESEARCH COMMITTEES IN THE DISCIPLINE OF ZOOLOGY, SCHOOL OF NATURAL SCIENCES

Introduction

Post-graduate research is a key activity, which needs to benefit both the individual student and the discipline of Zoology. Successful research and its professional dissemination enhances the standing of the discipline and the students who pass through it. Career prospects are improved by early publication of research. Post-graduate research requires clearly formulated hypotheses and a sound scientific approach. This document sets out the strategy to support post-graduate research students and their supervisors in achieving the full potential of research activities. We aim to foster mutually supportive responsibility among students and staff.

In order to monitor the development of research students and promote high quality research, there are periodic formal meetings between research students and their supervisory panel (research committee). The research committee comprises the research supervisor, a supplementary advisor, usually not involved with the research directly, and the post-graduate coordinator (or his/her nominee, usually the head of discipline, where the post grad coordinator is either the supervisor or the supplementary advisor), who will act as the Chair for the meetings. Members of the committee may be drawn only from academic staff eligible to supervise. Additional members may be included if this enhances the quality of the committee; rather than because they represent the interests of a research sponsor or third party.

It is the purpose of this document to clarify the structure within the discipline that supports post-graduate student research. We recognise the importance of student motivation, acquisition of basic skills, supervision, and development during the post-graduate period. The discipline and its students need to have a common understanding of research expectations and responsibilities. This is through consultation, enabling and encouraging staff and students to be fully engaged in, and supportive of, the requirement to produce well-trained and knowledgeable post-graduates.

Understanding the function of the research committees

The research committee is there to guide the direction of research and provide a forum for discussing the intellectual basis and progress of the work, to identify constraints to progress and recommend solutions to such constraints. The roles of the members of the committee inevitably vary, although it is not intended that the divisions among those roles in any way restrict useful contributions. The roles can be broadly defined as:

Post graduate student: Has the responsibility to be fully engaged both in the practice and design of the research. In the course of the research period it is important that the student takes full ownership of the work, and is knowledgeable of current developments in the field and appropriate practical and statistical techniques to support the research. In the committee meetings the student is expected to engage in discussion of the research questions and feasibility of their objectives, while at the same time being open to suggestions from the research panel.

Chair: Has the responsibility to introduce the members of the committee to each other, and outline their particular skills and responsibilities. The Chair will have responsibility to maintain an overview of the discussions and to address generic issues to do with the progress of the research. It is normal for the Chair to initiate discussion in the meeting, and then to pass over to the supplementary supervisor for more detailed discussion of the research plan and/or progress.

The Supplementary Supervisor: (S)he will have some experience directly relevant to the research and is expected to provide a greater focus on the research questions and practicalities than the Chair. S(he) provides an additional intellectual resource for the post graduate, both within and outside the formal structure of the meetings.

The Supervisor: The supervisor's main role in the committee meetings is to make notes of the key outcomes and then to discuss these with the Chair and supplementary supervisor before passing these on to the student. It is expected that this occurs as soon as possible after the research meeting. Naturally, it is sometimes important for the supervisor to clarify some details of the research plan, or background (such as the funding and obligations that come with that), or to engage where necessary with a wider intellectual discussion. However, it is important that the supervisor does not dominate the discussion, as there should be ample opportunity outside the formal research meetings for guidance and discussion with the student (see below under the *role of supervisor and student*). Similarly it is the duty of the supervisor to follow up the research report with the student and to engage where relevant with the supplementary supervisor or other parties where this has particular relevance for the successful progress of the research.

The research committee will meet at the beginning of the research and, at least, annually throughout the research period. If the PhD continues longer than three years, there should be a meeting after each subsequent year, unless writing-up is progressing well and it is agreed between supervisor and student that a meeting would not be useful. It is the responsibility of the post-graduate student to arrange research committee meetings at a time suitable to all members of the committee. There should be a relative consistency in the format of each meeting. Meetings are expected to last between 1-1.5 hours.

Recently there have been suggestions to move to four-year funded Graduate Research Education Programmes (GREPs) that incorporate both research and formal training. If these programmes become a common feature of the post-graduate experience, further guidance on their operation and management will be forthcoming from both the School and individual disciplines.

New post-graduates are expected to complete, within two months, a self-assessment questionnaire (Annex 1), that identifies the practical requirements and intellectual development needs for the timely completion and dissemination of the research. Progress in development of those skills will be self-monitored by the student and, in consultation with the supervisor, include verifiable milestones. This could include the identification of and participation, on suitable courses. Review of skills development should be included in the annual meetings.

Following each research committee meeting, and after consultation among academic staff, the research supervisor will produce, usually within three days, a brief summary of the

progress of the research and recommendations for follow up activities. These notes will be agreed by the research committee and signed by the supervisor and Chair of the panel. It is expected that the student and supervisor will meet within a week of receipt of this summary to discuss its contents and recommendations.

Progress reports

The research committee requires that:

- at least seven days prior to a research committee meeting, each student should submit a report, agreed and checked in advance with the supervisor;
- the first report (to be submitted within 2-3 months of the start of the project) should outline clearly the scientific question(s) to be studied and the scientific objectives of the research. It should include a brief summary of the pertinent literature, methods to be used and a timetable for the research. These will be reconfirmed or reappraised at subsequent meetings. Successive reports provide a means to review progress, and should be reviewed in subsequent meetings. Basic repetition is not required, but reference to previous reports is clearly relevant;
- subsequent research reports are submitted yearly and should include a table of progress of submitted and in-draft publications, and a concise summary of attendance and presentations (title of paper or poster; with author list) at conferences. Progress reports should not exceed 10 pages (excluding references) and should contain a full reference list, formatted unabridged and following commonly used criteria. Progress reports should, where possible, outline key results detailed by the respective thesis chapters. All tables, figures and references need to be completed to a high quality in acceptable scientific reporting format; and
- during the second year, around month 18 post-registration, a “Continuation Report” is required, as outlined below.

The Continuation report

University policy prior to 2008/9 academic year was that post-graduate students register initially for an M.Sc. and transferred to the Ph.D. register on condition of satisfactory progress. For students registering since October 2008, this step in post-graduate development is replaced with a formal “Continuation Report”. It serves the same academic purpose as the Transfer Report, so no diminution of standards is expected under the new structure. Continuation on the Ph D register will in most circumstances involve a meeting before the mid-point of the second year of registration. Continuation on the Ph D register is not automatic. It requires evidence that the student has a high probability of meeting the requirements of the higher degree. Thus, the Continuation report has two components:

First – a report not exceeding 10 pages (excluding the reference list) containing:

- a brief introduction (referring, as is relevant, to previous reports for detail);
- a summary of the research conducted to date (including brief Methods, Results and Discussion);
- a summary of the future research planned;
- an outline of the thesis structure clearly linking research to chapters;
- a clear timeline for completion of the PhD; and
- a full and accurate reference list in a consistent format

Second - a demonstration of the ability of the student to conduct independent and publishable research. The best way to demonstrate this is to produce a final draft of a manuscript that will be submitted for publication to a peer reviewed journal. It is expected that draft papers will include amendments that have been incorporated following review by the project supervisor. It is recognised that, for certain research areas and project designs, it may not be possible to produce a complete draft paper. Where this is the case it must be clearly outlined why this is so. In these cases a partial manuscript, based on collected data, should be produced. This partial manuscript should be written to the same level as the draft manuscript described above, with gaps for missing data clearly explained. The partial manuscript should contain:

- a clear rationale and context to the work;
- a succinct introduction with reference to important literature in the field;
- a succinct and relevant methods section;
- clearly presented results, analysed fully using appropriate techniques;
- a discussion that brings out the main findings of the work, placed in context of the state of the art of the subject;
- tables and figures of publication quality (and not cut and pasted from e.g. data desk); and
- a full and accurate reference list in a consistent format.

In addition to a partial manuscript based on data collected for the PhD, the research committee may choose to take other equivalent factors (e.g. manuscripts/papers based on previous work, posters) into consideration after prior discussion with the supervisor and before submission of the Continuation report. Decisions on continuation are made by the Chair and supplementary adviser, and not the supervisor. Recommendations for continuation, or otherwise, require approval by the School's Director of Teaching and Learning post graduate, or where this is also the supervisor or supplementary adviser, a pro Director.

Reports that are lacking important detail or are not produced to a high quality will be referred back for revision. If continuation is not recommended, the research committee will provide in writing a clear explanation of the reasons for this and, where they feel significant improvement can be made, will recommend the submission of a revised report. Time for this will be agreed with the student and a new date for a second continuation meeting will be set. Where continuation is not recommended this must be done within 20 months of the registration so as to allow time for writing-up for a degree of M.Sc. A third transfer meeting will not be permitted, unless recommended as the output of an appeal (see below).

Where non-continuation is disputed by the student, this will be referred, in the first instance, to the School's Director of Teaching and Learning (DTL) for arbitration or, in case of further dispute, to the Dean of Graduate Studies. Either the DTL or the student is at liberty to approach the Dean of Graduate Studies for further advice. The student also has other avenues in case of dispute, including the Graduate Students Union and the post graduate tutor system.

The role of supervisor and student

Both student and supervisor have responsibilities. The research supervisor and student should meet on a regular basis. This should be agreed between the students and supervisor and should be at least once every three months, although in most cases it will be more frequent than that. For all substantive meetings, it is recommended that post-graduate students keep a 'meeting notebook' which notes the conclusions of each meeting with the supervisor. At the end of each such meeting the supervisor and post-graduate should agree major points and conclusions of the meeting. This serves as both a record of decisions and as an aid-memoir for further discussions.

Expected student responsibilities are to:

- carry out research on a full-time basis (unless in agreed exceptional circumstances);
- become familiar with cutting-edge issues in their subject and to develop the skills necessary for research/experimental planning, self-organisation of laboratory and field work and the technical and analytical skills required for high quality research;
- self-monitor progress of work and to deliver any research outputs according to a timetable of targets agreed with the supervisor;
- deliver reports to outside agencies if these are an agreed condition of funding;
- arrange, in consultation with the supervisor, the annual research meetings and, as may be beneficial, interim meetings;
- participate in the annual post-graduate symposium held by the Discipline; and
- engage in wider intellectual and learning activities of the Discipline and School, including attendance at seminar programmes.

Supervisor responsibilities are to:

- foster a supportive environment for research students;
- make her/himself available for meetings, provide timely feedback (normal expectation would be within 2 weeks) to all submitted work and, through liaison within or outside the Discipline, facilitate reasonable logistical and infrastructure support. No one is expected to conduct research that is not practicable within the constraints of the Discipline and School;
- identify difficulties that may restrict or prevent progress of the research and, where appropriate, to bring these to the attention of the Research Development Committee (RDC) within the Discipline; and
- encourage and facilitate involvement of the supplementary advisor as is appropriate to their skills and availability.

Publication plan

After about one year, the student and supervisor will develop a publication plan for during and after the research period. It is expected that work that comes mainly from the student's research (recognising that some papers are the result of a combination of material from a number of projects) will have the student as first author. This, of course, assumes that the student provides intellectual input to the writing of the paper as well as drawing on the results of their field and/or laboratory work (see <http://www.icmje.org/#author> for one guide to authorship). It is expected that all work for

the Ph D should be available for publication within a reasonable period of time. Very rare exceptions may occur if there are commercial constraints that restrict publication for a set period of time. Where a student declares no attempt to publish, or where a long period from completion of the thesis has occurred (2-3 years), then the supervisor is at liberty to publish that work. In such situations, where the resulting paper has relied completely or extensively on the thesis, requiring some restructuring or editing for a submission, it would be normal that the student retains first authorship. Where there has been a need for new data collection, new analysis of raw data or extensive re-analysis of data, or an amalgamation of a number of sources of data (such as from two or more theses) authorship order might be revised. In all cases it would be expected that there would be reasonable discussion among all authors in order to agree authorship. In the very unlikely case of dispute, arbitration would be by the post graduate coordinator.

Communication difficulties

The post-graduate community should have a well-understood mechanism to discuss issues relevant to their research within the scope of their research committee or, alternatively and for more generic matters, through the Research Development Committee (RDC). The RDC and research committees are there as support mechanisms for post-graduate researchers. However, difficulties can arise between supervisors and students for a variety of reasons and, on occasion, the supplementary advisor or a member of the RDC may need to play a more active role in research and/or domestic matters. Depending on the needs of individual students, consideration should be given to adopting more formal arrangements to facilitate working through difficulties in a positive manner. This could include the more formal production of a meeting agenda and minutes by the student. Arbitration and guidance should be expected from the RDC. Alternatively, if requested by the student, these issues could be addressed through the Discipline or School post-graduate representative.

No issue of difficulty that is brought forward by a student will in any way prejudice the progress of the student to completion of their research. Research output is judged solely on its own merits. Confidentiality of all issues of potential conflict will be agreed with the student.

Annual post-graduate conference

Each student will be required to present to the Discipline and other invited parties, a 15 minute conference-style talk on their research every year during their registration. These talks will take place within a 1-2 day "Graduate Student Research Symposium" to be organised and run by the graduate students. This will occur in March-April. Assessment of talks will be provided by outside invited researchers, and detailed feedback to enable development and improvement of presentation-skills will be given to each student. It is expected that all students play an active role in the organising of the conference at least once during their period of registration, and that those with prior involvement will assist the incoming organisation committee.

External skills and added value

The Discipline will provide, where possible, facilities and funds for meetings designed to improve core skills and to disseminate information relevant to future employment of our post-graduates. These gatherings could be based around speakers invited to give talks/seminars on, for example, research strategies, developing research and communication skills, research/scientific philosophies, work motivation, interaction between pure research and technology/management issues. This process must be student-driven and organised by the post-graduate community. Suggestions for the format and types of speakers required should be explored jointly by the post-graduate representative and the RDC. It is strongly encouraged that post-graduates also contribute to the regular seminar programme of the Discipline, both by attendance but also by providing suggestions for external speakers. This is ideally done in consultation with their research group and supervisor. This, additionally, provides an opportunity for post-graduates to engage informally, over lunch or dinner for example, with external guest speakers.

Portfolio of skills and training

It is recommended that post-graduates keep a record of their achievements in a personal portfolio. This could include experience and credits in e.g. teaching, demonstrating, diplomas, training courses, posters, presentations given, manuscripts written and accepted/published. This can be very useful for further research or job applications.

Demonstrating and Teaching

Assistance with teaching by post-graduate students is an important part of their experience and training. Demonstrating is a professional commitment and should be treated as such. It is expected that demonstrators are familiar with the practical material. It is, however, very important that time involved in demonstrating does not restrict progress of a post-graduate's research. Students and supervisors should agree the time commitment to demonstrating and keep a record of that agreement. A limit of 6 hours per week is set by Graduate Studies, but may be further restricted depending on the demands that this may place on the research programme; but also taking into account commitments to teaching, as appropriate, for students on Trinity awards. There are also opportunities for post graduates to contribute to other parts of the teaching programme. These should be discussed in the first instance with the supervisor.

Other information

Guidance on supervision and good research practice produced by Graduate Studies can be found at http://www.tcd.ie/Graduate_Studies/currentstudents/supervision/index.php.

A post graduate tutor system is also now available

(http://www.tcd.ie/Senior_Tutor/postgraduate).

Summary of specific student tasks

1. Completion of self-assessment questionnaire within 3 months of project starts.
2. Preparation of first research report within 3 months of project start.
3. Arrangement of first research committee meeting to discuss 1 and 2 above.
4. Submission of yearly research progress reports, and continuation report after ca 18 months, and arrangement of research committee meetings.

5. Participation in the annual post-graduate student symposium.
6. Contribution to planning for special and regular seminar programme

KI (5th October 2009).

Attached: Annex 1. Self Assessment form.