



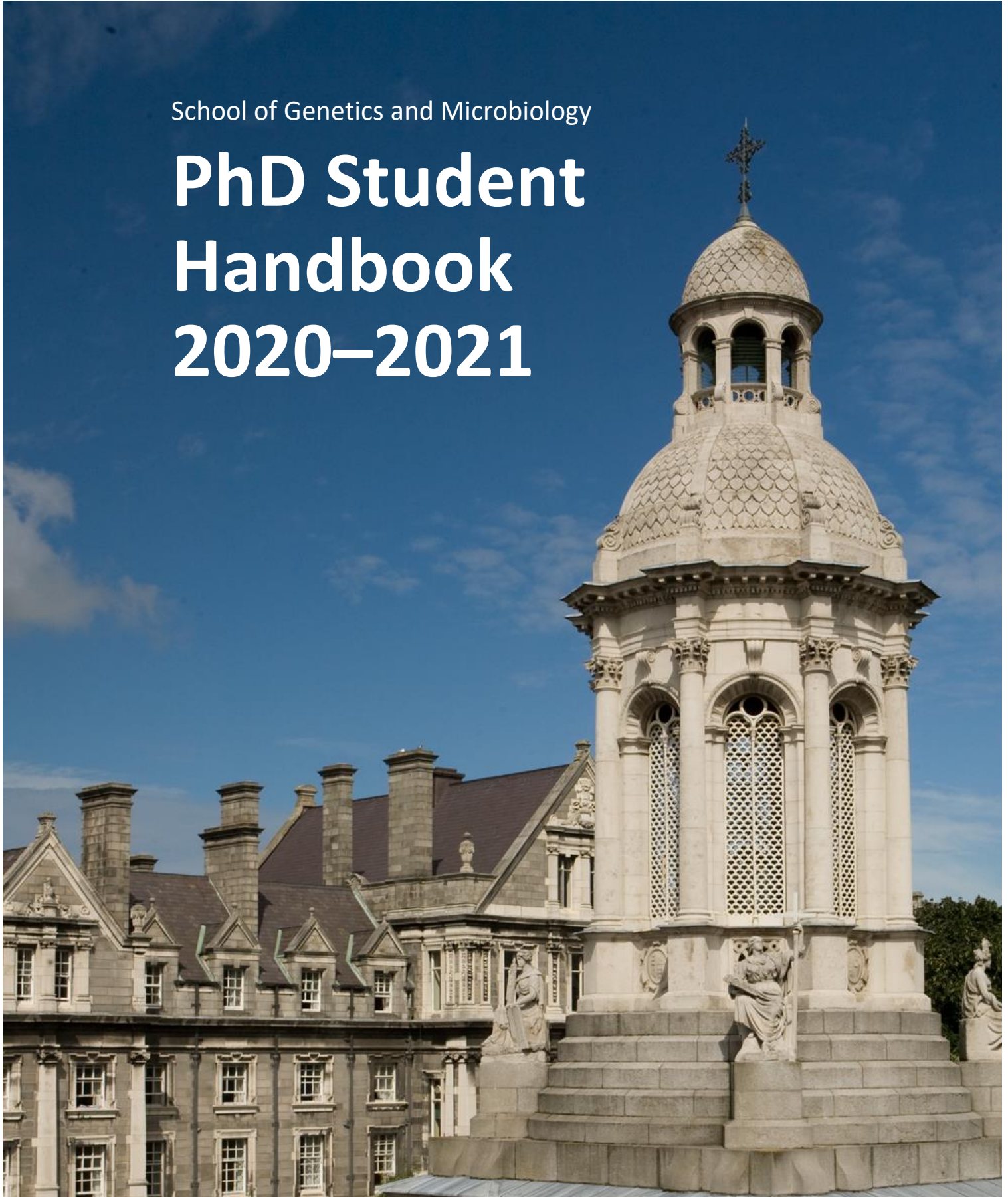
Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

School of Genetics and Microbiology

PhD Student Handbook 2020–2021



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1. Contacts

- **Director of Postgraduate Teaching and Learning:** Prof Matthew Campbell, Email: campbem2@tcd.ie, Tel: 8961482
- **Head of School:** Prof Dan Bradley, Email: dbradley@tcd.ie, Tel: 8961088
- **Director of Research:** Prof Adrian Bracken, Email: brackea@tcd.ie, Tel: 8964121
- **Head of Department:** Genetics, Prof Aoife McLysaght, Email: aoife.mclysaght@tcd.ie, Tel: 8963161)
- **Head of Department:** Microbiology, Prof Charles Dorman, Email: cjdorman@tcd.ie, Tel: 8962521)
- **Executive Officer (Genetics):** Ms Rowena McKeon, Email: genetics@tcd.ie, Tel: 8961140
- **Executive Officer (Microbiology):** Ms Jayne Vance, Email: magoveryj@tcd.ie, Tel: 8961190
- **Graduate Studies website:** <http://www.tcd.ie/graduatestudies/students/research/>

Statement related to out-of-hours work/safety

The School of Genetics and Microbiology strives to create an environment where all staff and students are provided with a supportive environment that encourages scientific excellence and success. To this end, our ethos is founded on striking a balance between a strong work ethic and personal well-being management. While research requires a substantial time commitment and if the need arises, out of hours work in laboratories will be necessary, you will not be expected to work beyond pre-defined weekly working hours on a regular basis. When students or staff need to work out of hours, appropriate additional safety precautions must be adhered to.

2. Overview

2.1 Communication

Announcements will be made by emailing you at your **tcd.ie email address**. It is important that you check this mailbox regularly or set it up to forward to an account that you do read.

2.2 Behaviour in the Departments

We expect very high standards of personal behaviour in the Genetics and Microbiology Departments consistent with their professional status. Please do not invite students from other Departments or friends into either the Smurfit Institute or the Moyne Institute, and when you are in the buildings please keep the noise down. Alcohol and smoking are absolutely forbidden.

2.3 Safety

Please make sure that you have received and have read the Science Faculty Safety Manual. Remember also that you are responsible for your own safety and that you have a responsibility not to endanger others by your actions.

2.4 College Contacts: The College also provides a number of contact points useful to postgraduate students.

2.5 Graduate Studies Office (GSO): The GSO is responsible for the administration of all Masters and Doctorate programmes in the College. Significant information for graduate students is provided here. See http://www.tcd.ie/Graduate_Studies/

2.6 Graduate Students Union (GSU): The graduate students union is an independent body representing graduate students in Trinity. The GSU is located on the second floor of House 6, at the front of College. All postgraduates are members and the organization serves the entire postgraduate community. The GSU Education and Welfare officer advises students on personal matters, financial concerns, bereavement and illness. All concerns are addressed with the strictest confidentiality. See <https://www.tcdgsu.ie>

2.7 The Postgraduate Advisory Service (PAS): The PAS is a unique and confidential service available to all registered postgraduate students at Trinity College. It offers a comprehensive range of academic, pastoral and professional supports dedicated to enhancing your student experience. The Postgraduate Student Support Officer provides 'frontline' support for all postgraduate students at Trinity College Dublin. S/he will act as a first point of contact and a source of support and guidance, both on your arrival in College and at any time during your stay. If you require specific advice, or would like to arrange a confidential meeting with the dedicated Student Support Officer, you can make an appointment by e-mailing pgsupp@tcd.ie. The service is located on the second floor of House 27 in the Senior Tutor's Office.

See: www.tcd.ie/senior_tutor/postgraduate

2.8 Career Advisory Service: The careers web site at Trinity College Dublin has a dedicated site for postgraduate students. There are numerous tools and information links to help inform your career path. Calendars of job fairs, careers week and other career-related events are provided throughout the year. Finally, information regarding CV/resume preparation and interview skills can be found here also. A career advisor is also available for an appointment. See: <http://www.tcd.ie/careers>

3. College Regulations:

Regulations for Higher Degrees by Research are contained in the University Calendar Part III. The University Calendar is available in all College libraries, the Departmental offices and online (<http://www.tcd.ie/calendar/>). Please refer to the University Calendar for general regulations, governing higher degrees by research only, for information on topics such as:

- Admission requirements
- Probation
- Subject of research
- Role of Director of Teaching and Learning (Postgraduate)
- Progress and continuing registration Role of Supervisors
- Attendance
- Part-time registration
- Extension and off-books
- Transfer to/Confirmation on the PhD register
- Procedure for examination of a candidate
- Complaints concerning supervision
- Appeal against the decision of examiners
- Plagiarism.

4. Getting set up as a PhD student

Prior to being employed as a research student in the School of Genetics and Microbiology, students must first submit their application (<http://www.tcd.ie/courses/postgraduate/how-to-apply/>) and complete the registration process.

Please note that there are only two registration periods for postgraduate research students in Trinity College Dublin; September and March.

Step 1

Student and PI complete a Graduate Student Proposal Form:

[http://www.tcd.ie/hr/assets/doc/Graduate Student Proposal Form.docx](http://www.tcd.ie/hr/assets/doc/Graduate_Student_Proposal_Form.docx)

Grant Holder / PI are asked to use electronic signatures.

Step 2

In order to receive payment, student should complete a Pay Mandate Form:

<http://www.tcd.ie/hr/assets/excel/directpaymandate.xlsx>

Step 3

To ensure the student does not pay tax, a third form needs to be completed:

http://www.tcd.ie/hr/assets/pdf/scholarship_exemption_declaration_form.pdf

Step 4

All three forms should be submitted in a single e-mail to Conor Spillane (cspillan@tcd.ie) and copied to relevant Department (genetics@tcd.ie or microbiology@tcd.ie) in the format outlined below for checking and Head of School signature:

1. Graduate Student Proposal Form - Word
2. Pay Mandate Form – Excel
3. Scholarship Exemption Form – Scanned PDF

In all cases, it is the responsibility of the Grant Holder (or PI or Lab Manager) to submit these forms. Students should not be included in any correspondence at this stage.

Step 5

Once checked and signed, the School will submit the forms to Human Resources.

Please note that for a Research Student to be paid on the 20th of any given month, all forms must be submitted to Human Resources by the 1st of that month.

5. Responsibilities of Supervisors and PhD Students

The supervisor's role is as an academic guide and mentor. In the ideal situation, a strong working relationship will develop between supervisor and student that will extend beyond the PhD study period and be a lasting career benefit. Such a relationship must be based on mutual respect and it will require significant effort by both parties. Regular communication is the essential ingredient to developing a strong working relationship - grievances should not be allowed to fester. Problem issues should be brought explicitly to the attention of the other party – do not assume the other party is aware that a problem exists. Together, the supervisor and student should work to achieve the academic and intellectual independence of the student. The supervisor's role is most important at the beginning of a PhD when the project is being formulated and the student is learning new techniques. As the work progresses the student should become more independent and should not rely on the supervisor for detailed instructions as to what to do. However it is important to recognize that supervisors have substantial research experience in the field and students should be continually cognisant of their guidance in mastering the many skills that are required to achieve a PhD, including: the choice of scientific problem, experimental design, technical approaches, scientific best practice, critical evaluation of data, critical evaluation of the literature, data presentation, career planning and many other issues. Your supervisor should also play a major role in helping you track the progress of your work and how to develop good project management skills.

Students should make themselves familiar with the document on good research practice and supervision guidelines available from the Graduate Studies Office webpage:

<https://www.tcd.ie/graduatestudies/students/research/>

In summary, a student can expect their supervisor to:

- Meet with them at mutually convenient times on a regular basis
- Advise on experimental or research strategies
- Assist in interpretation of data and results
- Work with the student to prepare work for publication

A supervisor can expect a student to:

- Conduct their work with integrity and diligence
- Avoid plagiarism and all other forms of academic misconduct
- Keep a detailed lab notebook
- Report the status of their work at regular lab meetings
- Write the first draft of manuscripts arising from the student's work
- Prepare and deliver seminars within the School as well as at international conferences
- Communicate any difficulties to the supervisor as soon as they arise

6. Grievance resolution

If a problem arises the best solution is resolution with the supervisor directly – therefore, good communication and mutual respect between supervisor and student is essential. In the event that the problem cannot be resolved in this way, then it is recommended that the problem be addressed through mediation with the following people, preferably in this order:

1. Director of postgraduate teaching and learning (**Prof Matthew Campbell**: Email: campbem2@tcd.ie, Tel: 8961482).
2. Panel members of the confirmation viva.
3. Head of Discipline

Genetics

(Prof Aoife McLysaght, Email: mclysaga@tcd.ie, Tel: 8963161)

Microbiology

(Prof Charles Doman, Email: cjdorman@tcd.ie, Tel: 896 2521)

If the problem remains unresolved, the student should contact the Head of School for advice. All discussions will be held in the **strictest confidence**.

College also provides a Postgraduate Advisory Service and students may refer to this service for advice and assistance. However, we strongly recommend that a resolution is sought within the School before seeking external assistance.

Please also see the TCD dignity and respect policy: <https://www.tcd.ie/equality/policy/dignity-respect-policy/>

7. Structured PhD programme

Once registered, you are on a 4-year (full-time)/6-year (part-time) structured PhD in Trinity.

What does this mean?

- You have a PhD project which is the central focus of your research for the 4/6 year period.
- It is compulsory that you complete modules to the value of between 10 (min) and 30 (max) ECTS.

These can be modules set up by the School (see below) specifically for PhD students, modules from taught Masters programmes (in another School by permission; For example Statistics course) or modules provided by non-academic units in College for PhD students. These include modules provided by the Innovation Academy, Academic Practice and eLearning (CAPSL), Student Learning Development and the Library. Additionally, students engaged in laboratory animal work can obtain 10 ECTS by completing the Laboratory Animal safety and Training (LAST) course. Further information on modules for credit available to PhD students can be obtained from School Research Handbooks, your Supervisor and the School Director of Teaching and Learning (Postgraduate) (DTLPG).

8. Thesis Committees

Genetics

- 1) Students will be assigned a thesis committee comprising of 2 members of academic staff independent of their primary supervisor. The Chair of the thesis committee will act as the secondary supervisor for the student.
- 2) Upon starting in the department, the student introduces themselves informally to their thesis committee (within the first 3 months).
- 3) In the second year of the student's registration (normally the 18 month time-point), the committee acts as the PhD confirmation panel (transfer report) to decide on continuation on the PhD register.
- 4) Before the end of the student's **first and third year** on register, the non-supervisor members of the Committee should meet with the student in the absence of the supervisor.
- 5) It will be the student's responsibility to convene these meetings.
- 6) Students should prepare 5 slides as an outline of their project at the end of the first and 3rd years.

Microbiology

Students in the Microbiology department: Please see Section 12.

9. Steps to complete progress report in years 1 and 3

**This process must be completed at the 12 and 36 month time point post registration.
** Students will not be invited to register for their next year until this process has been completed*****

1. Student with the guidance of their supervisor completes their progress report.
2. Progress report is then sent to the Director of Postgraduate Teaching and Learning (Prof Matthew Campbell: campbem2@tcd.ie)
3. If you registered in September of a given year, you will need to complete and send a **Progress report form** (<https://www.tcd.ie/graduatestudies/assets/pdf/progress-report-2018.pdf>) back to the DPGTL in July/August every year. DPGTL will send a reminder email with details of the deadline.
4. If you registered in March, you will need to complete the form by February each year. The DPGTL will then contact Academic Registry on your behalf and you will be progressed to the next year of your studies. The DPGTL will send a reminder email with details of the deadline.
5. Please note: The DPGTL will send a reminder to all PhD students and PIs in February and July of each year. The DPGTL is not responsible for any progress reports not submitted on time. Students and supervisors will have to deal with Academic Registry separately.

10. Guidelines for submission of PhD progress/confirmation report

The confirmation report should be submitted after 18 months of registration and not later than 22 months.

The purpose of the confirmation report process is:

1. To provide an independent confirmation that research question or area under investigation forms a valid subject for a doctoral thesis.
2. To consider whether the approaches taken so far are valid and likely to yield results and insights at a level commensurate with what would be expected of a doctoral thesis.
3. To provide an evaluation of the rate of progress towards the goal of a doctoral thesis and likelihood that the student will submit a doctoral thesis within the normal time scale.
4. To provide independent advice on possible directions the research might take.
5. To encourage both student and supervisor to take stock of the situation at the mid point position of the normal PhD timescale.

What should the report contain?

It is important to keep in mind that this process is not a dry run for a PhD write up and viva, although it should be helpful in preparing for this task. The prime objective of the process is to determine what the research is about, whether it is an appropriate subject for a PhD?

The report should contain:

(i) An introduction that clearly and precisely introduces the research under consideration. It should be clear from the introduction what the research question(s) is and why it is important. All non-original material (figures etc.) should be properly referenced. The introduction should focus on the issues and literature that are relevant to the research question. It is not necessary to write an exhaustive review of the field. The introduction should conclude with a list of clear aims and objectives of the proposed doctoral thesis. **(ii)** A methods section that contains appropriate detail on how the experiments were performed and the major methodologies employed. It is important to note that candidates may be requested to explain the key technologies they have used to generate their data. **(iii)** A results section constructed in a clear and logical manner that allows the reader follow the experimental data and evidence being presented. Particular attention should be given to the presentation and titles of figures. In all cases appropriate legends should be included. The results section should demonstrate sufficient progress towards the goal of delivering conclusions, insights or outcomes that would be expected of a doctoral thesis. However, it is important to stress that at this stage (after 18 months work) the results do not necessarily have to be conclusive or completely novel but should generate an expectation among the reviewers that these are both achievable within the normal time scale considered appropriate for a doctoral thesis. **(iv)** A discussion section that draws appropriate conclusion from the results, places them in the context of other published results and develops new insights where appropriate. At this stage (after 18 months work) it is not expected that these insights or proposals be fully formed but represent reasonable conjectures. The final section should contain an outline (1-2 pages) of the proposed future directions of the work with an estimated time line of expected key experiments/results and the intended submission date of the thesis. A complete list of references should be provided using a peer review journal accepted format. If you cite an article you should be familiar with the details and contents of the article as you may be quizzed on this point. If you have hundreds of references you may well attract attention to this point.

The report should also contain:

A single page abstract/summary of the report should also be provided.

A complete list of abbreviations employed.

How long should the report be?

There is no absolute limit but the expected size of a confirmation report should be approximately 50 –70 pages. It is important to keep in mind that after 18 months you are not expected to produce a mini-version your PhD thesis.

11. Genetics Department Guidelines

Steps to complete confirmation of continuation on the PhD register process

This process must be completed at 18 months and well before end of year 2

**** Students will not be invited to register for their 3rd year until this process has been completed**. We will ensure time is left to make corrections/amendments to your report and the DPGTL will email you with a deadline set in/around the 22 month time-point post registration.**

Therefore, for students registering in September, there will be a deadline in/around July of your 2nd year. For those registering in March, the deadline will be in/around January of your 2nd year.

1. **2** appropriate individuals will be appointed on a confirmation panel for each student.
2. The student liaises with the thesis committee to arrange a date and time for confirmation viva. Student will also provide a report in the form of a “mini-thesis”, outlining progress of their project to date and plans for the future. While there is no absolute limit, the expected size of a confirmation report should be approximately 50-70 pages. It is important to keep in mind that after 18 months you are not expected to have a completed thesis.
3. Supervisor/student books an appropriate room for the confirmation viva with the school office.
4. Examiners will complete a single written report (prepared jointly) to provide feedback to the student and supervisor on the project and give their recommendation for continuation on the PhD register. This is forwarded by email to the supervisor and DPGTL.
5. Supervisor completes/signs the confirmation form (attached-Appendix I) with the student and forwards a signed copy by email to the DPGTL.
6. DPGTL forwards the countersigned report to the student and supervisor while retaining a copy on file.
7. DPGTL submits the final confirmation report form to the Dean of graduate studies to complete the process.
8. Upon receipt of the examiners report the student and supervisor should meet to formally discuss the examiners report and make clear plans for the remainder of the PhD

Please note that there are 5 potential outcomes of the continuation process. These are: **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, or **(e)** not to continue as a postgraduate research student.

12. Microbiology Department Guidelines

In Microbiology all students are assigned a Thesis Committee comprising two members of the academic staff during the first six months of their registration and meet with their committee at regular six month intervals to discuss progress.

The confirmation process must be completed at 18 months and well before end of year 2. ** Students will not be invited to register for their 3rd year until this process has been completed*. Any corrections/amendments to your report must be completed in advance of the deadline set by the DTLPG in/around the 22 month time-point post registration.**

The confirmation process in Microbiology requires students to present a research talk to the Department (approximately 25 to 30 min) and submit a detailed report to the Thesis Committee (a style booklet with detailed instructions will be provided, the report must be read and signed by the supervisor before submission). Further guidelines for the preparation of the report are available from the Microbiology Office.

1. Students and supervisors will be notified by email of the dates of the thesis committee meetings taking place every 6 months (usually in August and February each year).
2. Examiners will complete a single written report (prepared jointly, template below) to provide feedback to the student and supervisor on the project and give their recommendation for continuation on the PhD register. This is forwarded by email to the supervisor and DPGTL.
3. Supervisor completes/signs the confirmation form (attached-Appendix I) with the student and forwards a signed copy by email to the DPGTL.
4. DPGTL forwards the countersigned report to the student and supervisor while retaining a copy on file.
5. DPGTL submits the final confirmation report form to the Dean of graduate studies to complete the process.
6. Upon receipt of the examiners report the student and supervisor should meet to formally discuss the examiners report and make clear plans for the remainder of the PhD

Please note that there are 5 potential outcomes of the continuation process. These are: **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, or **(e)** not to continue as a postgraduate research student.

POSTGRADUATE COMMITTEE FEEDBACK FORMS

MICROBIOLOGY DEPARTMENT

STUDENT REPORT SUMMARY

After each meeting the committee members are to provide students with a summary of the outcomes of the process to the Postgraduate Student, with copies to the Departmental Office (magoverj@tcd.ie) within 48 hours.

NAME OF POSTGRADUATE STUDENT:

STUDENT ID:

PROVISIONAL TITLE OF THESIS:

NAME OF SUPERVISOR:

MEMBERS ON COMMITTEE:

DATE OF COMMITTEE:

Please the appropriate boxes below:

Year 1: 6 mth 12 mth

Year 2: 18 mth 24 mth

Year 3: 30 mth 36 mth

Year 4: 42 mth

Confirmation to Ph.D. Register

Comments/Feedback:

13. Preparing the PhD thesis

It is normal practice for the supervisor to read and comment on completed chapters of the thesis. Obviously, writing the thesis is the responsibility of the student and the supervisor may only give advice and guidance on the writing. Reading a thesis is often a demanding task and the student should negotiate with the supervisor to find times when it is mutually convenient for this to be done. It is unfair of the student to expect the supervisor to drop everything and read the thesis without prior notice. It is also unfair if, having agreed to undertake the job at a particular time, the supervisor then delays unreasonably the returning of the (read) thesis. Your Thesis Committee is there to assist you with problems of this type.

The student should make every effort to present the thesis free from errors in English (spelling mistakes, grammatical errors, poor syntax). These are completely avoidable and most external examiners are diligent in picking them out. Much correcting can be avoided by a simple process of rigorous proof reading.

The Graduate Studies Office will supply their latest rules and regulations about thesis format, print quality etc. Trinity College requires two bound copies of the thesis. One will eventually go to the College Library and one is kept in the Departmental Library. It is normal for the student to want to keep a copy too. Therefore, the minimum number of copies is three. However, the supervisor should also be presented with a copy, not least as a way of saying 'thank you' for the supervision and support given.

14. Steps for submitting a PhD thesis and arranging the viva

1. Student submits "Intention to Submit" Form:
<https://www.tcd.ie/graduatestudies/assets/pdf/thesis-intention-to-submit-Jan2020.pdf>
2. Academic registry will then send students a link to upload their thesis online in pdf format.
3. Supervisor completes the "nomination of examiners" form:
(https://www.tcd.ie/Graduate_Studies/education-policy/examiners/research/)

Supervisor submits the external examiner's CV (max 2 pages) and nomination form to the DPGTL.

- **Note:** External examiners must not have collaborated or published with either the student or supervisors or be a recent graduate of TCD i.e. within 10 years. Examiners of research dissertations may not be appointed until at least 5 years have elapsed since the end of their previous appointment. Examiners must not have any existing relationships with Trinity, members of staff or students that could call their impartiality into question. If such an individual can not be identified then a request can be made outlining the justification for selecting the chosen external. This should be submitted to the Dean of Graduate Studies via the DPGTL well in advance of submitting the nomination form.

4. DPGTL submits a signed copy of the nomination form, plus CV to GS.
5. Once GS receive the examiner nomination form and CV, they will then send out the thesis and paperwork to both the internal and external examiners

Note: It is recommended that supervisors informally approach examiners in advance of the thesis being submitted to provisionally arrange a date for the *viva*. The examiners will receive a copy of the thesis from GS, but if there is a tight time line between submission of the thesis and the date of the *viva*, it is recommended that a copy of the thesis be forwarded by the supervisor directly to the examiners (in addition to submission of copies to GS).

6. Supervisor in conjunction with the internal examiner arranges the date and time of the viva and books all rooms required (Lecture room for pre-viva talk, meeting room for the viva).
7. Supervisor contacts a chair for the *viva*. A rota for PhD chairs is kept on file in the office please consult this list and make contact with the next available person on this list who will act as chair.
8. Supervisor should contact the relevant departmental Office to arrange accommodation for the external examiner, if required.
9. Supervisor should contact the relevant departmental Office at least 2 days in advance of the *viva* to arrange for refreshments to be provided during the *viva*.
10. Student will be required to give a pre-*viva* talk, which is open to TCD staff and students.
11. Supervisor forwards details of the pre-*viva* talk to include students name, project title, names of examiners and supervisor, to the relevant departmental Office at least 1 week in advance. Details will then be circulated to the School staff and students 1 week ahead and again 1 day ahead of the pre-viva talk.
12. The pre-*viva* talk can be chaired by the supervisor.

13. The *viva* should take place immediately after the talk and should be attended by the external and internal examiner and the chair.

14. Information on the process involved in submitting the final PhD thesis and depositing it in Tara can be found at <http://www.tara.tcd.ie/> *

*** IMPORTANT: All PhD theses are now deposited on TARA therefore if a PhD contains confidential unpublished data it is recommended that a letter requesting a “stay” be submitted to the Dean of Graduate studies at the same time as the nomination of external examiner form. A template for this letter can be found in Appendix II.**

15. Examination of the Thesis

Once the thesis has been submitted to the Graduate Studies Office, the supervisor is asked to nominate the external and internal examiners. The internal examiner is usually an academic staff member of Trinity College and the external examiner is from another institution, often a UK University or Research Institute. Scientists from other European countries are sometimes appointed as external examiners.

The Dean invites the examiners to accept the thesis for examination. Only when acceptance is received will the thesis be sent. It will normally take at least six weeks for the external examiner to read the thesis and for the *viva voce* examination to be arranged.

The thesis is judged under three categories.

- Does it contain adequate reference to the published work in the field?
- Does it contain original observations (i.e. not published previously) which are worthy of publication in the scientific literature?
- Is it presented in acceptable literary style?

The examiners judge the thesis in advance and then assess the candidate’s performance at the oral examination. They then make one of the following recommendations:

1. The degree be awarded for the thesis as it stands,
The degree be awarded for the thesis subject to minor corrections, for which two months are allowed from the time of notification,
2. The thesis be referred for major revision and subsequent re-examination, for which six months are normally allowed from the time of notification,
3. A lower degree be awarded, if necessary following minor corrections to the thesis
4. The thesis be failed. When failure, referral of a thesis or the award of a lower degree is contemplated the candidate should be informed of this possibility in advance of the *viva voce*. A thesis may only be referred for major revision once: in other words, option (iii) above is not available to examiners on re-submission.

Further details of regulations and procedures can be found in the postgraduate studies supplement to the College Calendar

16 General information regarding PhD studies in Genetics and Microbiology

16.1 The First Year

In the first year the student must become familiar with the area of research through reading the literature. It is important to learn how the proposed research project relates to the field, who the other scientists working in the area are and what their interests and contributions are. This task is difficult if taken on in isolation. A research-active supervisor should be familiar with the work of other groups in the field and be able to give advice that will help avoid needless duplication of work already underway elsewhere (or which has already been completed). As in all walks of life, modern science is competitive and it is important to know and appreciate what one's competitors are doing. The first year is also the time in which the experimental work is initiated. Often this involves a painful period of false starts and setbacks, frequently for technical reasons. Modern molecular biology employs many techniques and these can sometimes prove to be difficult to master. However, there is an art to the successful employment of *any* technique (molecular or otherwise) and the student must acquire competence in these arts if useful data are to be obtained. The easiest course is to choose a research problem that can be solved using the existing technical and intellectual expertise of the supervisor's laboratory. However, if everyone took this approach, methodologies within individual labs would never advance. In order to make progress, it may be necessary to learn methods that are new to the lab. Here it is important for the student to take the initiative and to seek (with the help of the supervisor) expert advice beyond the home lab, either elsewhere in the School, within the University or even further afield. Constantly repeating a procedure which is not delivering results is ultimately futile and is bad for your morale.

Within the first six months the student should become capable of describing the nature of the research problem, how it relates to the field, and what methods are to be used to address it. Some students may even be producing useful data at this point. Monitoring of progress is crucial in order to identify any problems at this early stage and your Thesis Committee is there to help with this.

16.2 The Second Year

In Year Two, the bulk of a substantial part of the experimental work should be carried out. The first year is the time for the 'lag-phase' of the learning curve, when the pitfalls of the techniques are encountered and tricks-of-the-trade acquired. By Year Two, the foundation should be laid for a concentrated period of productive work. If the lag-phase extends into Year Two, something is probably going wrong. The project may have been too ambitious, the lab may not provide critical items of technical or intellectual support, the student may not be using the available resources well (perhaps by being too backward in seeking help), there may be difficulties with the supervisor-student relationship which hamper effective communication, the student may be unmotivated or have little aptitude for research.

If all is going well, Year Two should see the student gathering a substantial amount of the material for the results chapters of the thesis. These data must be scrutinised critically by student and supervisor and discussed with as many colleagues as possible. During postgraduate education, the student should develop strong critical faculties where scientific data of all kinds are concerned. This ability comes from engaging in discussion and debate with other professional scientists at every opportunity, both in informal settings (such as the coffee room) and more organised forum such as Departmental seminars, invited lectures by external speakers and journal club. Regular lab meetings provide an opportunity to discuss results and any technical difficulties with the other members of the group in the supervisor's presence. Students should aim to participate fully in these meetings - they should not simply be a means of bringing a busy supervisor 'up-to-date' with the development of the project.

If critical and analytical skills are not learnt at this period of the postgraduate experience, their absence will tell during the *viva voce* examination in which the student will be called upon to defend the thesis. An absence of these critical skills in reasoning and deduction will also hamper the student in later phases of life, such as during postdoctoral research. It is unlikely that such a person will make an independent and effective scientist, although they may be capable of being trained to carry out the directives of others. A PhD degree in Genetics or Microbiology from Trinity College should tell a potential employer immediately that the holder is both an independent thinker (i.e. a Doctor of Philosophy) and an effective experimentalist. During this very busy second year, the student must not neglect developments elsewhere in the field, or in science in general. Keeping up with the literature is essential and requires self-discipline. The "Pubcrawler" website operated by the Genetics Department can be used to provide regular updates of the most recently published papers determined by your personal profile of key words used to search the National Library of Medicine database PubMed. The student should be encouraged to participate in scientific conferences by presenting a poster or a short lecture. Attendance at such meetings allows the student to meet and talk to a wider range of scientists and may help to give the student some ideas about future employment choices.

16.3 The Third Year

Ideally, in Year Three, the experimental work should draw to a close and the writing of the thesis should begin. Writing always takes longer than many students imagine so it is important to get the task underway as early as possible. One of the worst situations to find oneself in is to have left the Department with the thesis unwritten. The demands of a new job, possibly in a foreign country (and perhaps with a new language to learn) will erode rapidly any spare energy which the student had hoped to devote to writing in the evenings. It is theses of this type which run the risk of never being completed. There may also be a financial penalty to be paid for not finishing the thesis: most funding organisations refuse to pay 'postdocs' on a postdoctoral salary scale until they have submitted the thesis. There may be differences of opinion between students and supervisors about when the bench work should stop. The student should remember that the PhD Thesis Committee members are available to help resolve these issues.

16.4 The Fourth Year

University regulations have changed recently. A student can remain on the PhD register for no longer than four years. One extra month (*e.g.* the September following the third year or fourth year if a student registered in September) called "Dean's Grace" can be requested from the Dean of Graduate Studies in order to submit the thesis without financial penalty

Some funding agencies provide a stipend and fees for three years. However it is now recognized that it is often difficult to complete a PhD in this time..

Many postgraduate students prefer to extend their stay in the department for another 6-12 months. It is often possible for the supervisor to provide support for this. There are limited funds available from the university to support some students in the fourth year. The extra time is beneficial because it often allows the student to bring projects to completion and to write and submit papers for publication. The thesis will undoubtedly be of a higher standard.

17. Publication

It is wise to discuss with the supervisor the probability of publishing as much material as possible from the thesis in good quality journals. The student should have learnt quickly that not all scientific journals are equal and the higher the impact factor of the journal in which the work appears, the better for the student's career (and that of the supervisor!). Publishing two or three papers from a thesis in good peer-reviewed journals is indicative of a successful project. If the papers are accepted for publication before the thesis is examined, the criteria of originality and publication-worthiness of the thesis material are largely met.

18. Demonstrating and supervision

Postgraduate students may be REQUIRED to act as demonstrators in undergraduate laboratory practical classes held in the School and in the Biology Teaching Laboratory. Without the assistance of postgraduate demonstrators undergraduate practical teaching would not be possible. Also, to learn how to be an instructor is an important part of a postgraduate student's training. The maximum amount of time should not exceed 6 hours per week – more than this would be too disruptive to the students' research. Supervising a final year undergraduate student's research project and/or a visiting student also provides an invaluable experience. A postgraduate student might be asked to help supervise a project when they are in the second or third year of their postgraduate career.

Appendix I

Confirmation on the Ph.D. Register

This **Confirmation Form** must be submitted to the Dean of Graduate Studies Office, Trinity College, Dublin 2 for every student accepted directly to the Ph.D. register, normally within the first 18 months of the student's registration.

This **Confirmation Form** must be submitted to the Dean of Graduate Studies Office, Arts Building, Trinity College, Dublin 2 for every student accepted directly to the Ph.D. register, normally within the first 18 months of the student's registration.

I seek the Dean's approval for confirming the following student on the Ph.D. register:

Name (in CAPITALS): _____

I.D. Number: _____

Date when entered College on the Ph.D. register year 1: _____

Date when Ph.D. *Confirmation Process* has been completed: _____

State month and year of the student's intended Ph.D. thesis submission date:

Supervisor's name: _____

Supervisor's signature: _____

I would like to confirm that the **Confirmation Process** has been completed as a result of an academic assessment carried out in the School with respect to the student.

School: _____

Director of Teaching & Learning (Postgraduate) (Signature): _____

Director of Teaching & Learning (Postgraduate) (Name): _____

Date of submission to the Graduate Studies Office: _____

Date of approval: _____ Dean of Graduate Studies _____

Appendix II

PLEASE use headed notepaper

Prof. Martine Smith,
Dean of Graduate Studies
Graduate Studies Office
Academic Registry
Watts Building
COLLEGE

Please insert the date

RE: Thesis entitled "Please insert the thesis title"

School of Please enter name of School

Dear Professor Smith,

We are writing to you in connection with the above-named thesis, which Please insert name of student has submitted for the degree of Ph.D., under the supervision of Please insert name of supervisor(s) of the School of Please insert name of School

The data contained in this thesis is currently unpublished and also may contain important Intellectual Property (IP) that is yet to be explored. Therefore, it is essential that there should be no public disclosure at this stage.

In accordance with Section 1.38.15 of the University Calendar, Part II, "Withheld access ", we hereby request that a 'stay', for a period of X year(s), be put on this thesis, withholding it from public access in the College Library.

Thank you for considering these requests. I would be grateful if you would please confirm that it will be possible to accede to them.

Yours sincerely,

Please insert name of M.Sc. / Ph.D. Student

School of please insert name of School