



NUI Galway  
OÉ Gaillimh

**School of Physics**  
**Postgraduate Handbook**  
**2017**

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## 1. Welcome

The primary purpose of this handbook is to inform post-graduate students, supervisors and others of the expectations and procedures for the postgraduate research programme in the School of Physics. In this regard, the handbook primarily describes a number of procedures and timelines for monitoring progress of postgraduate students on structured PhD programmes.

The Handbook also describes the responsibilities of supervisors, students and members of the Graduate Research Committee. The purpose of stating these explicitly is to ensure that the quality of the postgraduate research programme at the School of Physics continues to advance and so that it becomes increasingly competitive internationally. Our aim is to graduate MSc and PhD students who are highly regarded at both regional and international levels.

The handbook serves to present local guidance relating to the management of postgraduate research programmes within the School of Physics and College of Science. All students should be familiar with the broader University Guidelines & Regulations for Research Degree Programmes to which we are bound. These guidelines are available on the Graduate Studies [Website](#)[1].

## 2. Responsibilities

The **postgraduate student** is responsible for carrying out postgraduate research which is quite different from taking an undergraduate degree. A major difference is that you will often be expected to work on your own and take the responsibility for your work. To ensure success in achieving a postgraduate degree, you will need to be well-motivated, and where appropriate a team player. Experience has shown that research students typically have to invest a significant amount of time, over and above that of a "normal" working week, to achieve the goals of their research. A total annual leave of six weeks is considered normal.

The postgraduate student is responsible for:

- Ensuring you communicate (i.e. report progress, barriers to progress and problems) regularly with your supervisor and any other persons as appropriate. If you have a problem or wish to discuss an issue, do not wait until your supervisor sees you, but actively seek out your supervisor to arrange a meeting at a mutually convenient time. As a rough guideline, you should see your supervisor at least once per week, albeit for a short discussion.
- Completing two core and four elective modules as part of your structured 4-year PhD (two core and two elective modules for a 3-year PhD). Pick modules that will assist your research and reward / support other transferrable skills during your study.
- Committing a reasonable effort in terms of time to your research. This may vary significantly during your studies, but at busy times you should anticipate spending 50 or more hours a week, for example, just before conference talks or other deadlines.
- Maintaining a record of your research using a lab-book or its electronic equivalent. The responsibility for backing up data lies entirely with you and it is essential that your results, if stored in electronic form, are backed up regularly.
- Carrying out any appraisal of safety issues in your experimental work, in consultation with your supervisor.

- Writing periodic progress reports / presenting your work as described below in Section 3.
- Writing papers for peer-reviewed journals and for conference proceedings. The number of such papers depends very much on the subject area and nature of your research (theory/modelling/experimental/instrumental), but a reasonable goal is a minimum of 1 peer reviewed paper and 2 conference papers for a PhD student, and one conference paper for an MSc student.
- Submitting your thesis in a timely manner. Your goal should be to complete your PhD research in four years and two years for an MSc by research.

**The Supervisor.** Each student will be assigned a supervisor, and possibly a co-supervisor where this is appropriate. The primary responsibility of the supervisor is to provide guidance on the student's research, and provide the equipment and travel support necessary to carry out the research. Provision of space is by mutual agreement between the supervisor and the Head of School. The responsibilities of the supervisor include:

- Ensuring that the student has been introduced to members of their immediate research group and are familiar with university facilities such as the Library and Information Systems & Solutions (ISS).
- Providing advice and guidance about the direction of the research and the strategies that might be used to achieve the goals of the research. This also includes advising the student on the research modules to be chosen in any given year.
- Providing guidance on the standard of work expected for a PhD or MSc, and communicating clearly to the student when that standard is not being met.
- Ensuring there is regular contact with the student, typically at least once a week.
- Providing timely feedback on written reports and oral presentations where appropriate.
- Providing (in consultation with the School) suitable office space, and laboratory space where required, and providing adequate equipment for the research.
- Carrying out, in consultation with the student, any safety appraisal of your experimental work.
- Providing the opportunity for students to attend international conferences in their specialist subject. The provision of equipment and travel funds implies securing research grants or contracts to support the student directly or indirectly.
- Providing encouragement to write papers for peer-reviewed journals and conference proceedings. In this regard, the supervisor should ensure that the student is given appropriate recognition, for example as first author where appropriate.
- Ensuring that sufficient funding for the student's stipend is likely to be available for the period of their degree.
- Ensuring that the research is carried out to the highest ethical standards, and to assist the student to get approval from the NUIG Research Ethics Committee where appropriate.
- Ensuring that adequate supervision is in place for students during any extended (> 1 week) period of absence of the supervisor.
- Reporting on the progress to the students Graduate Research Committee prior to the GRC meeting each year (using the [GS040](#) form) [2].
- Assessing and relaying of student assignments performed in GS modules for which the supervisor is the responsible person.

- Inspecting and approving the final soft bound copy of the thesis for examination.

**The Graduate Research Committee:** Graduate Research Committees (GRCs) are integral to delivering quality graduate education at the School of Physics. The GRC will consist of academics from across the different research clusters of the School of Physics. The GRCs and their chairs are appointed by the Head of the School of Physics. There is a GRC for each year, and this committee has a single chair, which will rotate within the committee from year to year as specified by the Head of School. This committee will track student progression through the PhD (i.e. students will have the same GRC for all years of postgraduate study). When the committee has to review the progress of a student who is supervised by a member of the GRC, then that member will be absent from the corresponding GRC meeting. If the supervisor is also chair of the GRC, then a specific chair will be appointed for that student by the Head of School.

The **GRC** responsibilities are:

- Ensuring that the quality of postgraduate programme reaches the highest standards in comparison with other universities internationally.
- Attending student presentations for first, second, and third year students.
- Meeting with students to discuss progress annually.
- Signing off on the [GS050](#) progress form and returning it to the Administrator in the School for PGR programmes ([susan.gallagher@nuigalway.ie](mailto:susan.gallagher@nuigalway.ie)) [2].
- Provide feedback to students.
  - At the end of the GRC meetings the student will be asked to leave the GRC for a few minutes while the GRC agrees on feedback. The student will be asked back in and given the feedback orally.
- A member of the GRC must approve the submission of the PhD thesis for examination.
  - One week prior to submission of PhD thesis to the university, a soft copy should be submitted to a member of the student's GRC. The GRC member will follow a checklist including structure of the PhD and Plagiarism checking before signing and forwarding to the HoS.

It is the responsibility of the **Chair of the GRC** to:

- Ensure that feedback from the annual review is given to the student & supervisor
  - The Chair of the GRC will send the feedback by email to the student on the same day as the GRC meeting, with a copy to the GRC members and supervisor.
- Raise any matters of concern to the supervisor or and, where appropriate, the Head of School.
- Return all GS50 forms to the School administrator of PG programmes ([susan.gallagher@nuigalway .ie](mailto:susan.gallagher@nuigalway.ie)) as soon as possible following the GRC meeting. Failure to do so will prevent the student from registering for the next year of study.

The **School administrator of PGR programmes** is responsible for:

- Maintaining a file on each research student containing: (a) admissions information, (b) copies of all yearly reports and presentations, (c) a record and details of participation in modules and (d) any other appropriate material. This file may be inspected, at reasonable notice, by the student.
- Organising/coordinating lecture courses for internal and external postgraduate students.
- Maintaining an up-to-date version of the Postgraduate Studies Handbook and any other documentation relevant to graduate programmes within the School.

The **Head of School** is responsible for:

- Appointment of the Graduate Research Committee and their chairs.
- Managing the allocation of space and resources throughout the School.
- Implementing the Graduate Research Programme within the School.

The **College of Science** is responsible for:

- Implementing and reporting on all PhD programmes throughout the College.
- Convening an examination board meeting that considers the recommendation of progression made by the GRC, for each and every PhD student, from one year to the next.

All students in Physics undertaking a structured PhD in Science participate in a class denoted by xSPS1 (full time) or xSPS2 (part time).

The **Graduate Studies Office** develops and oversees the implementation of academic graduate study programmes throughout the University.

### **3. Procedure in the case of the GRC having concerns about progress**

If the GRC has significant concerns about the progress of a student, going beyond the usual level of recommendations and feedback, then it should adhere to the following procedure:

1. The GRC will draw up a list of actions and a plan for implementation, including a date for an extra GRC meeting to re-review progress.
2. The chair of the GRC will send the action plan to the student's supervisor, the School administrator of PG programmes, the Chair of the Graduate Education Committee and the Head of School.
3. The chair of the GRC will convene a meeting with the student to re-review progress.
4. The chair informs the student's supervisor, the School administrator of PG programmes, the Chair of the Graduate Education Committee and the Head of School if the action plan has been satisfied.
5. If problems persist, the chair of the GRC will arrange a meeting with the HoS and supervisor.

#### 4. Structured PhD programme in Physics (PH650)

In addition to the research component, graduate students will be required to successfully complete a minimum number of approved modules consisting of 30 ECTS (over 4 years) and 20 ECTS (over 3 years). Students participating in the structured PhD programme in the School of Physics at NUI Galway will take two core modules in Teaching and Learning (GS506) and Graduate Research Skills (GS504) as outlined below. They should register for GS505 only once (preferably for third year), and should preferably take GS506 in their second year. Students are free to choose four elective modules, based on generic / transferrable skills or in discipline-specific courses in consultation with their supervisor.

The School of Physics offers two scientific computing modules in collaboration with the Irish Centre for High End Computing (PH 502-6), one optics and imaging module (PH506), and an on-line module in Aerosol (PH507) science subject to student interest. There is also a Biophotonics and Imaging Summer School (BIGGS) (PH508) which is held bi-annually. These courses are offered to other students nationally via the IUA agreement. The IUA Agreement allows students to take modules accredited in other Irish universities.

Graduate students at the School of Physics are encouraged to take courses accredited and delivered by other Schools and Colleges (within NUI Galway) and with other academic institutions within Ireland. The courses are advertised on [www.Flexilearn.ie](http://www.Flexilearn.ie), or students will be advised by the supervisors or administrators of opportunities during the academic year.

A summary of the structured PhD in Physics is given as follows:

Graduate studies modules for school of physics	ECTS	Code	Responsible
<b>Core modules</b>			
Graduate Research Skills	5	GS505	Research Supervisor
Teaching & Learning	5	GS506	CELT, NUI Galway
<b>Elective modules in transferable skills</b>			
Statistical Methods for Research	5	GS507	Mathematics
Scientific Programming Concepts	5	PH502	ICHEC
High Performance Computing & Parallel Programming	5	PH504	ICHEC
<b>GS Modules (full list at [3])</b>			
Journal club programme	5	GS502	Research cluster / group
Research Placement 1	5	GS 511	Research supervisor
Communication & Outreach	5	GS 536	Chair, SOP Promotions Committee
<b>Elective discipline – specific modules</b>			
Optical Design & Image Formation	5	PH506	School of Physics
Physics of Aerosols and Particulate Matter	5	PH507	School of Physics
Biophotonics and Imaging Summer School	5	PH508	School of Physics

## 5. Module Registration

Each year students are requested by Graduate Studies to formally register [online](#) for their postgraduate programme [2]. In this process the student selects modules, in consultation with their supervisor. Only modules which students are confident that they will complete in the academic year should be chosen. The student specifies these modules and associated credits on the registration form. The research component in the appropriate discipline, RM 650 for Physics, accounts for the remaining credits, bringing the total credits up to 90 ECTS.

The typical steps in the registration process are as follows:

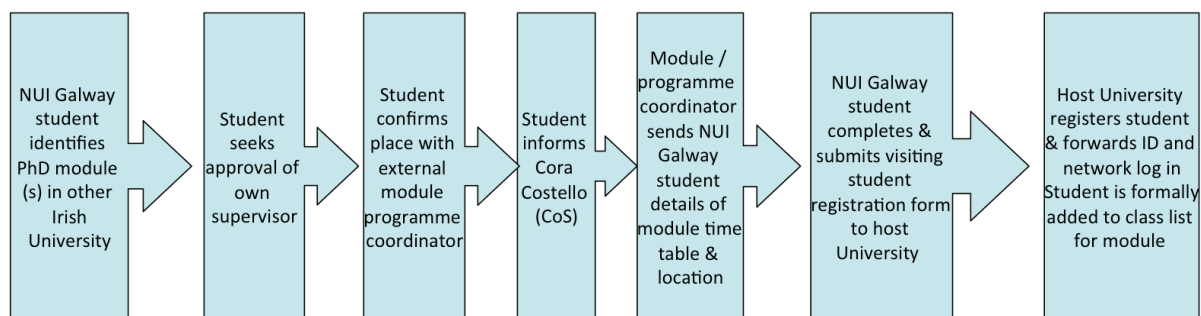
1. Discuss choices of modules with supervisor
2. Go to Registration web page & log in.
  - i. Work through the menu on left
3. Chose the most appropriate modules:
  - i. If module is not listed on syllabus file, but it is approved as an SPS module in an Irish University, it is easy to get it listed -talk to your supervisor & Cora Costello (CoS)
  - ii. If module not listed and not approved in an Irish University, supervisor must get it approved. Discussions begin with the SOP RGE committee.
  - iii. Only include modules that will be completed in the current academic year.
4. Add research component to bring credits up to 90 ECTS for academic year. i.e. if 3 modules each 5 ECTS are chosen, the research component of 75 credits need to be selected.

In principle, students can elect to take PG modules from across the College of Science. If they wish to take any undergraduate modules, then this has to be approved by the Graduate Studies committee of the College of Science. The criteria for acceptance are that (i) the module will assist the student's research, (ii) the student has not taken a similar module previously and (iii) the Supervisor and Module Owners agree to the student taking the module.

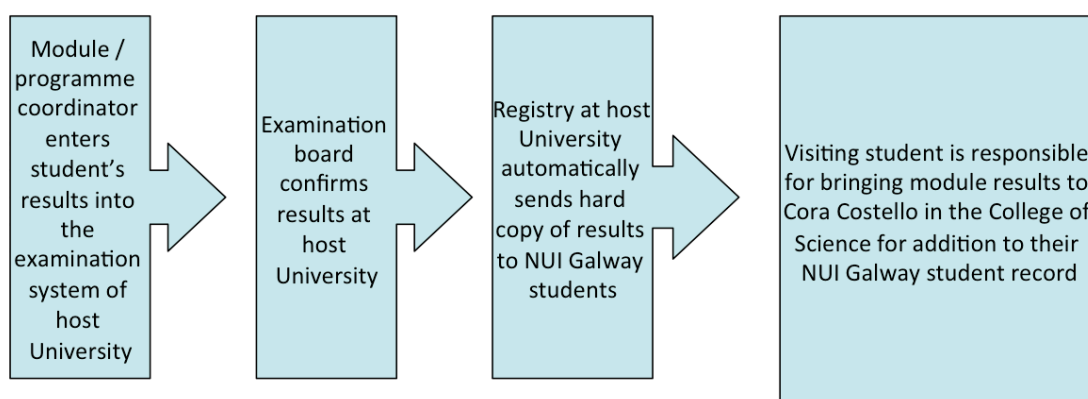
## 6. Inter University Modules

There are many external modules available at other Universities, some are listed on [www.flexilearn.ie](http://www.flexilearn.ie). Credit is provided under the Inter University Agreement (IUA). The implementation of access and credit transfer is evolving; the current approach is described here. In cases where the student opts for a module offered by another university, Figures 1 and 2 describe the procedure which should be adopted. The CoS (Cora Costello) should be informed as soon as possible that the student is registering on an external module so that she can set it up on the NUIG examinations system.





**Figure 1:** Initial steps required by student in taking a module offered by another University in Ireland.

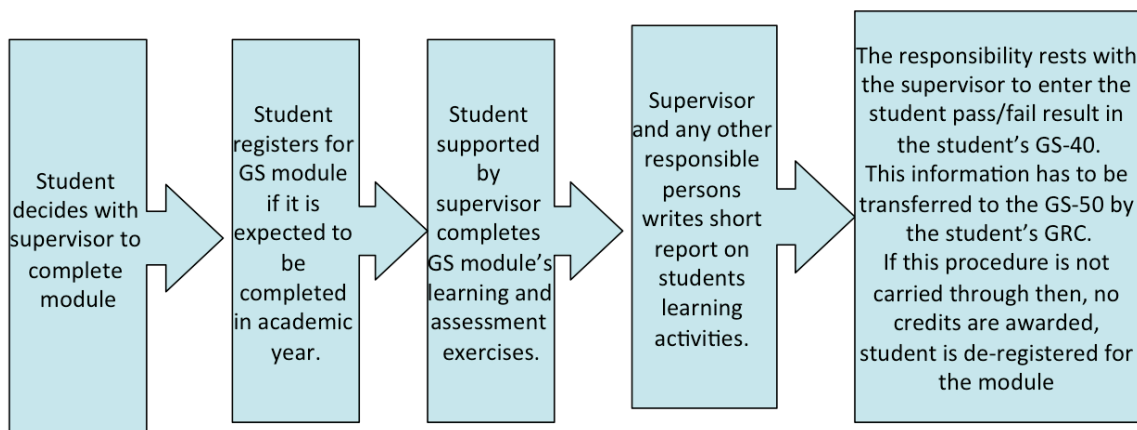


**Figure 2:** Steps required by student to obtain credit for module following the completion of a module in another University.

## 7. Graduate studies (GS) Modules

Students can also opt for GS modules which are based on experiential learning. These modules are developed by the Graduate Studies Office. A list of the modules appears [here](#)[3]. In many cases the supervisor is the responsible person who oversees the implementation of the module. The steps required in obtaining credits for GS modules where the supervisor is the responsible person is illustrated in figure 3. It is vital that the supervisor enter a pass/fail result in the relevant section of the GS-40 *and* that the GRC transfer this information to relevant section of the GS-50.

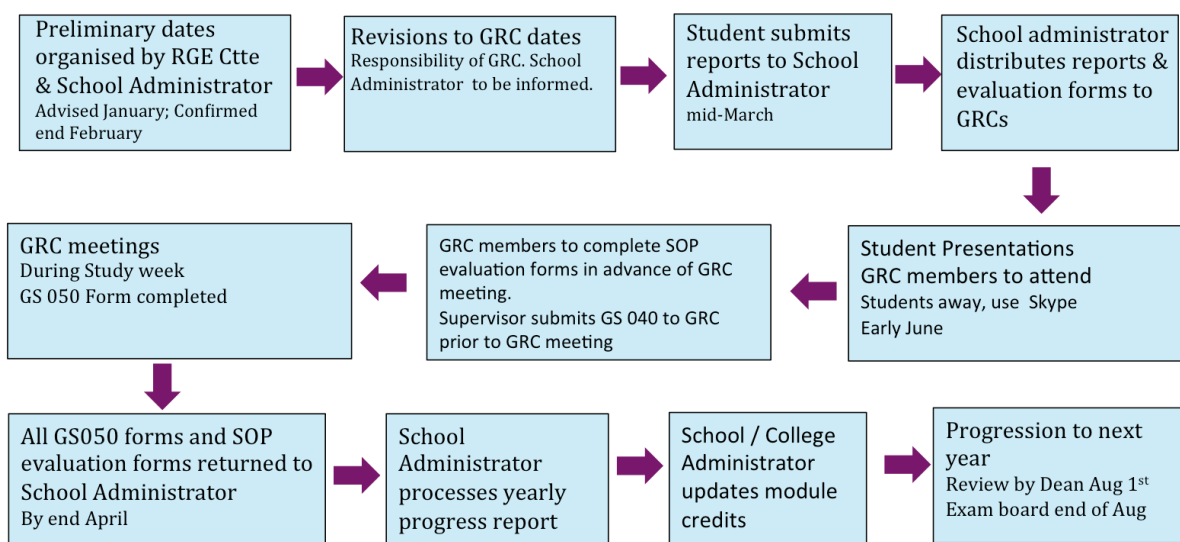
In the case of elective modules with a module owner, it is the responsibility of the module owner to enter the student's results in the Grade Center of Blackboard for that module before the due date.



**Figure 3:** Steps required by student and supervisor in obtaining credit for GS modules.

### 8. Annual Review process

Each year, during study week (around mid-April), the progress of the student is reviewed by the Graduate Research Committee. The timeline for this review is given in figure 4.



**Figure 4:** Time line for student reviews in the School of Physics.

The reporting requirements for students involve the following:

1. A progress report (years 1,2 and 3) according to a template which will be provided (also attached here as Appendices).
2. A document which depending on the year in question is a literature review or a thesis outline + completion plan.
3. A short oral presentation.

Students should send the reports and other documents to the email address of the School Administrator [susan.gallagher@nuigalway.ie](mailto:susan.gallagher@nuigalway.ie) by the specified date. Students are requested to

indicate the year of their review and their host School on the subject line. eg. First year review, School of Physics.

### **Presentation**

Students are requested to give a short presentation on their work shortly before the GRC meetings; these presentations help inform the GRC of your progress. Presentations should be no more than 10-12 minutes in duration. 3-5 minutes will be allowed for questions.

Supervisors are requested to submit a [GS040](#) report in advance of the GRC meeting.

### **Other documents**

Besides the Yearly report, students will submit another document according to their year of study, as outlined here:

Year 1: A literature review on your research topic, limited to 10 pages, excluding the list of references. Please save report with filename: FirstName\_surname\_litt.pdf .

Year 2: An update to your 1<sup>st</sup> year literature review, limited to 10 pages, excluding the list of references. Please save report with filename surname\_FirstName\_litt.pdf

Year 3. A thesis plan and draft table of contents.

The reporting requirements for students completing their **fourth and subsequent years** are:

1. Outline of thesis.
2. Completion plan.

## **9. Thesis submission**

PhD theses can be submitted in monograph or article-based formats. There are no specific requirements governing the monograph format.

For a PhD written in an article-based format, the University regulations state:

*“In this (article based) format, a number of research articles written by the student while registered for the PhD, either published or accepted for publication, are presented with an introductory chapter, explanation of the research question, relevant literature and methodology and a concluding chapter.”*

The School of Physics requires:

- Three peer-reviewed research articles, published or accepted for publication.
- The student must have made a major contribution to the work described in each article and the writing of the article. This contribution must be clearly described in the thesis document.
- The articles presented in the thesis must be supported by a comprehensive introduction, methodology, and conclusion.

Students who do not satisfy these requirements can submit their thesis in the usual monograph style.

When submitting a soft bound thesis for examination, the thesis must be approved for examination according to the University Guidelines. The School requests that an electronic and paper version of the thesis is presented to the Chair of the GRC one week in advance of any submission deadline. An [EOG 020](#) form should be presented with the thesis when seeking approval for examination.

#### **10. PhD Viva**

The School of Physics requires a Viva Voce examination to be carried out for all students undertaking the PhD degree. This oral examination follows an examination of the soft bound thesis performed by the external and internal examiners. The Viva examination is chaired by an independent academic appointed by the Chair of the discipline. The School of Physics fully implements the University regulations concerning the PhD Viva. An excellent guide is available for staff and students [4]

## 11. References

- [1] University Guidelines for Research Degree programmes  
[http://www.nuigalway.ie/media/graduatestudies/files/university\\_guidelines\\_for\\_research\\_degree\\_programmes.pdf](http://www.nuigalway.ie/media/graduatestudies/files/university_guidelines_for_research_degree_programmes.pdf)
  
- [2] One line registration  
  
<http://www.nuigalway.ie/reg/>
  
- [3] List of GS modules  
  
<http://www.nuigalway.ie/graduate-studies/currentstudents/gsmodes/>
  
- [4] PhD Viva Guide  
  
[https://www.nuigalway.ie/media/graduatestudies/files/phdvivaguide/phd\\_viva\\_guide.pdf](https://www.nuigalway.ie/media/graduatestudies/files/phdvivaguide/phd_viva_guide.pdf)

## Appendix II Progress report year 1

### 1<sup>st</sup> Year Progress Report

In order to provide some structure to your annual report, you are asked to provide responses to a series of questions, outlined below. These questions are provided to assist the development of your report, thereby allowing improved assessment by reviewers.

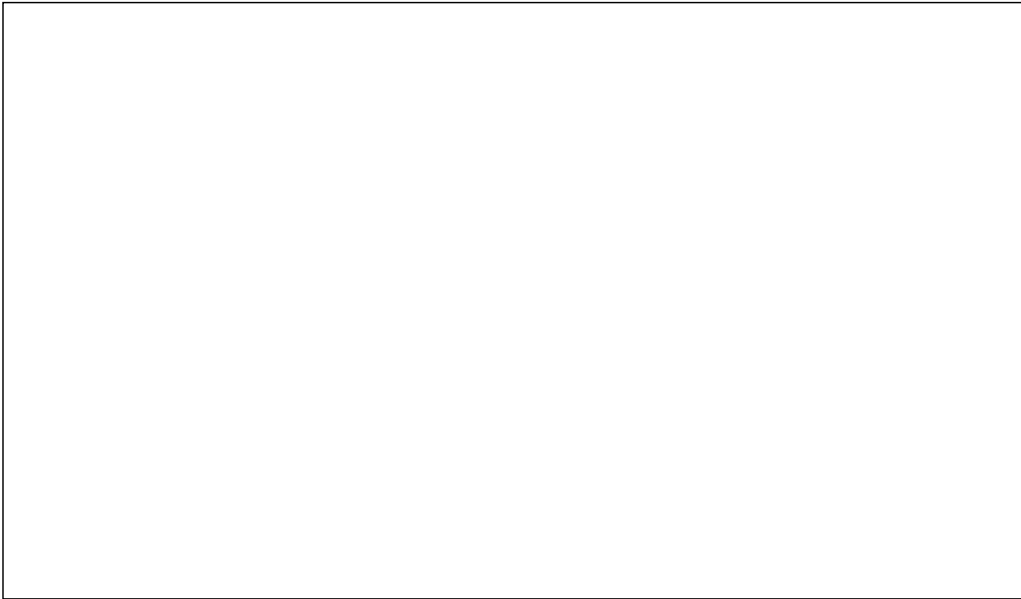
**1. What are the objectives of your research?**

What do you hope to achieve after 3 to 4 years of active research.

**2. Why is this research important?**

Provide the big picture of the relevance of your research.

- 3. Describe the key findings resulting from your research activities to date?**  
Summarise the findings that have emerged from your activities to-date.



- 4. What is your plan for the coming year?**  
Outline your plan for the coming year. (1 page max)

**5. Is there anything limiting your ability to conduct research at the highest level?**

This is an opportunity to suggest how improvements could be made which would allow you to perform at a higher level.





## Appendix II Progress report years 2 and 3

### 2<sup>nd</sup> Year Progress Report

In order to provide some structure to your annual report, you are asked to provide responses to a series of questions, outlined below. These questions are provided to assist the development of your report, thereby allowing improved assessment by reviewers.

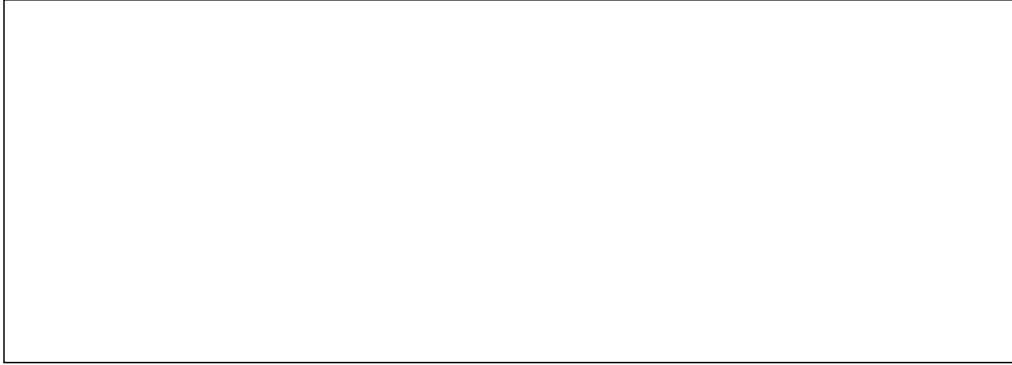
**1. Have the objectives of your research changed in the last year?**

If so explain.

**2. Describe the key findings resulting from your research activities over the last year (since your last GRC meeting)?**

1

**3. Provide details of any papers, conferences, presentations, patent applications over the last year?**



**4. What is your plan for the coming year?**  
Outline your plan for the coming year. (1 page max)

**5. Is there anything limiting your ability to conduct research at the highest level?**

This is an opportunity to suggest how improvements could be made which would allow you to perform at a higher level.



