

## DGP GRADUATION INSTRUCTIONS

To meet the requirements for graduation from the DGP, a student must:

- 1) submit a written dissertation to the thesis committee
- 2) pass an oral defense (private final examination meeting before the thesis committee)
- 3) provide documentation of publication(s)
- 4) give a thesis seminar (advertised, public event open to the Northwestern community)
- 5) make any corrections to the dissertation that are requested by the committee and submit final version to Graduate School via ProQuest site

The instructions and guidelines below should be followed as DGP students approach graduation.

### 1) Permission to write dissertation.

The thesis committee is responsible for determining when a student has met the research requirements necessary to submit a completed dissertation. When a student and advisor determine that all or most of the experiments required of the thesis have been completed, the student will convene the thesis committee to request permission to write the dissertation. This is usually done within six months of the anticipated date of final completion.

The student will submit to the committee and to the DGP an outline of the proposed dissertation, including a list of the likely figures and tables. At the meeting, the student will present a comprehensive overview of the research they have accomplished and plan to accomplish prior to graduating. Based on the dissertation outline, the figure and table list and the oral summary, the thesis committee will determine whether the body of research is sufficient and consistent with a PhD degree or whether additional experiments are necessary. If additional work is required, the extent and nature of this work will be listed on the report form. In some situations, the remaining work may be judged to be so extensive or ill-defined that completion is not possible in the near future. The meeting will have three possible outcomes:

- (i) **Approval** —the completed work is of sufficient quality and significance to support a PhD thesis. This option will be used when the student's body of work is essentially complete. Signed approval from the committee will then be provided at the end of the meeting.
- (ii) **Conditional** —additional experimentation is necessary to complete a dissertation, but the student should be able to complete these experiments within the next six months. This option would be used when the student has already completed substantial and significant research but when a few experiments are required to bring the work to conclusion. Signed approval from the committee will be obtained after the additional work is completed or after the student provides an accounting of their attempts at completing the additional work and an explanation of why the additional work could not be completed. Committee approval at this stage may not require an additional meeting, although a follow-up meeting can be requested by any committee member prior to the student receiving signed approval.
- (iii) **Incomplete (Reschedule)** —The student's graduate work remains incomplete and considerable progress is necessary before a dissertation can be written. The meeting should be rescheduled once substantial progress has been made.

If a student does not yet have a first author publication in press at the time the thesis committee grants permission to write the dissertation, a plan for completing the publication requirement before graduation must be included on the committee report form. The plan should include the likely date of submission of a paper, and indicate what will be the student's expected participation in any revisions for resubmission.

## 2) Graduate School forms to be completed prior to defense

**A)** Students must notify the Graduate School of their intent to graduate in either March, June, August or December by completing the ***Application for Degree*** form on-line using the Graduate School Tracking System (GSTS; <https://gsts.northwestern.edu/dashboard>). Please note that the application for degree is due several weeks before the actual date of graduation. Students must check the Graduate School web site for deadlines.

<http://www.tgs.northwestern.edu/academics/academic-services/calendar/index.html>

**B)** The student will complete the ***Final Examination Form*** on-line using GSTS. This form will include the title of the dissertation, expected defense date, and the names of the advisor and all thesis committee members. Please note: the advisor must be listed as a committee member *in addition to* being listed as the advisor. The student will submit the form on-line. GSTS will automatically send emails to all committee members for approval once the date of the private defense has passed. Committee members should approve the thesis electronically via the links in those emails. Approval of this form indicates that the committee members (1) approve the written dissertation and (2) agree that the student has passed the final dissertation defense. The committee must determine whether the dissertation is in a form suitable for submission to the Graduate School or requires edits or revisions. Any edits or revisions required by committee members should be conveyed to the student by providing a written list or by providing marked copies of the dissertation. The advisor (or someone designated by the committee) will be responsible for confirming that all edits have been completed in the dissertation prior to approving the final exam form. If any committee member has trouble approving the thesis through GSTS, they may sign the DGP form (see below) or a printout of the Final Exam form and send it electronically to the DGP office.

## 3) DGP Approval of Dissertation and Defense form

The *DGP Approval of Dissertation and Defense form* (contained in this PDF) may be filled out by the dissertation advisor and signed by the thesis committee members. This form is no longer required if all committee members approve of the Final Exam form on GSTS. If approval is entirely electronic, the student should provide documentation of the student publication to the DGP office in the form of the paper's citation or acceptance letter (see next section). The student should also provide the Thesis Committee Verification Checklist to the committee to discuss at the final exam.

## 4) Documentation of student publication

Every DGP student is expected to make significant contributions to an area of biology or medicine. Before awarding the PhD, the DGP requires each student to have published at least one first-author, peer-reviewed, original research paper in the primary literature (i.e. not a review article) that contains substantial data stemming from the student's dissertation research. At least one paper must be published or in press before a student has finished the PhD requirements.

The advisor may use the *Approval of Dissertation and Defense form* to list the student's paper(s). Please see the instructions on Page 2 of the form below. The student may also use GSTS to document the publication or may send documentation directly to the DGP office. If the paper is published, a PubMed citation is sufficient. If it has been accepted and is in press, a copy of the acceptance letter is sufficient. If neither of these conditions are met, please see page 2 of the *Approval of Dissertation and Defense form* for further instructions.

## 5) Written dissertation document, private oral defense and public seminar

Students are responsible for scheduling the final defense with the committee. Students must provide the committee with the complete dissertation at least two weeks before the date of the defense.

The committee may accept the dissertation as is, accept it with revisions, or reject it as unsuitable. The committee will also decide whether to grant permission for the student to give their final seminar. This decision can be based on the quality of the dissertation and/or the quality of the defense. A student that tentatively schedules a public seminar prior to the final exam should realize that the thesis committee may not grant permission for the final seminar at this time. It is most common to present the seminar one to two weeks after the defense, but students can schedule the seminar at the convenience of their advisor, family members, committee members, etc. Students should revise or correct the dissertation as instructed by the committee before the public seminar. The dates of the defense and seminar should be early enough to allow the student sufficient time to meet the published deadlines for submitting the completed dissertation and all supporting materials to the DGP office and The Graduate School. The DGP office will advertise the final seminar once the private defense has been passed. The student should provide the DGP office with the date, time, location or zoom link, and title of the seminar.

Any student with extenuating circumstances regarding the timing of the seminar and the private defense should contact the DGP office.

Although the student will often have formally defended his or her dissertation to the committee prior to the public seminar, the student will not have completed all of the requirements for the DGP. Both the mentor and the student should recognize that the public defense is the culmination of their PhD experience and represents an important moment in both of their academic careers. While family and friends are welcome, it is important that the student understand that the final seminar is meant to be a scholarly presentation. The professional standards that are expected of either outside speakers at Northwestern or of students at large international symposia should be maintained. Items such as the acknowledgements should be brief and professional as would be expected at a normal scholarly seminar.

## 6) Completing the process

Once the student has submitted an acceptable dissertation and passed an oral defense, the committee should approve the **TGS Final Examination** form. The advisor (or designated committee member) should approve the form after the student has made all necessary revisions to the dissertation as instructed by the committee. If physical signatures are preferred, these should be brought or sent to the DGP office.

Please see <https://www.tgs.northwestern.edu/academic-policies-procedures/policies/phd-degree-requirements.html> for more information for further information from the graduate school. Additional questions can be sent to Student Services in TGS ([gradservices@northwestern.edu](mailto:gradservices@northwestern.edu)).

**Note for students earning dual degrees:** If you are earning a master's degree as part of a dual degree program or on an ad hoc basis, please check with your master's degree program administrators to get instructions on how to apply for and be awarded the master's degree. That is a separate process from the PhD approval and graduation.

# Driskill Graduate Program in Life Sciences (DGP) Committee Approval of Dissertation and Defense

| Name of Student                      | Signature of Student |
|--------------------------------------|----------------------|
|                                      |                      |
| <b>Date of Dissertation Defense:</b> |                      |

Committee Members - Please sign to indicate that you:

(1) approve the written dissertation\* and (2) agree that the student has passed the final defense.

| Printed Names<br>of Committee Members | Signatures of<br>Committee Members | Approve<br>Dissertation * | Pass<br>Defense |
|---------------------------------------|------------------------------------|---------------------------|-----------------|
| Chair:                                |                                    | Y N                       | Y N             |
| Advisor:                              |                                    | Y N                       | Y N             |
|                                       |                                    | Y N                       | Y N             |
|                                       |                                    | Y N                       | Y N             |
|                                       |                                    | Y N                       | Y N             |
|                                       |                                    | Y N                       | Y N             |

\*If the dissertation requires more than minor corrections (typos, etc), this form should not be signed until the document is in the final form. Please provide required revisions to the student via either a written list or by marked copies of the dissertation.

Due Date for Revisions: \_\_\_\_\_

Both minor and major revisions must be confirmed by at least one member of the committee. Please indicate who has verified edits or corrections before submission to Graduate School:

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Use the space below to list the student’s first author published, peer-reviewed, original research paper(s) that are in print or in press to fulfill the DGP publication requirement. Please attach documentation for papers that are currently accepted but not yet in press. If the student has no paper in print or in press, list any submitted paper(s) and proceed to page 2.

DGP Director Approval: \_\_\_\_\_ Date: \_\_\_\_\_

**Instructions:**

A paper that is submitted and reviewed (but not published or in press) can fulfill the requirement if the reviewers' and editor's comments indicate that only minor editorial revisions (formatting, additional discussion, reference corrections, etc.) are needed before publication. A submitted paper that requires substantial changes (e.g., additional experiments or resolution of disagreement between the reviewer(s) and the authors concerning experimental interpretation) will not fulfill the requirement. The student and advisor will submit the reviews and editor's comments to the DGP office. Determination of whether the student has met the publication requirement with a paper needing minor revision will be at the discretion of the DGP Director.

**Please attach correspondence from the journal for papers that require minor revisions. Use the space on Page 3 of this form to elaborate if needed.**

**Co-first authors**

A paper on which a student is a co-first author will not automatically fulfill the requirement, but co-first authorship can meet the publication requirement in many cases. As with a sole author publication, the student's contribution should represent both a substantial amount of the work of the paper as well as a significant portion of the student's thesis. There are two characteristics of co-first author papers that will make approval likely: 1) if there are only two co-first authors, and 2) if the publication comes late in the student's career and represents a major portion of the thesis project. Publications that have more than two co-first authors or that are published early in a student's career are less likely to be approved. In all cases, approval requires that the student and advisor first explain to the thesis committee the student's contribution to the paper and the proportion of the thesis represented in the paper. If the thesis committee determines that the student's contribution meets the spirit of the requirement, they will petition to the DGP to allow the publication to meet the requirement. The thesis committee members should indicate their approval (or disapproval) to a petition by initialing the appropriate boxes on page 3 of the Thesis Defense form. Specific comments from the thesis committee may also be included in a petition package. Petitions to allow a co-first author publication to meet the requirement may be approved by the DGP Director, or may be passed to the Program Committee.

**Please use the space on Page 3 of this form to document the student's contribution to any co-first author paper(s).**

If the student has not met any of the above publication conditions at the time of the dissertation defense, the student and advisor, with agreement of the thesis committee, can petition the DGP Director and Program Committee for an exemption to allow the student to graduate prior to completion of the requirement. The petition should include a letter from the student and advisor providing a compelling explanation for why the body of work in the thesis has not been able to meet the publication requirement thus far, and specific plans for a successful publication. It is preferred that a manuscript has been submitted and gone through at least one round of review for the thesis committee to comment on the likelihood of publication after revision. The current manuscript draft, manuscript reviews and author rebuttals (if applicable), as well as a copy of the student's current CV should be included in the petition package. Unanimous consent of thesis committee is preferred but not required to submit a petition. The thesis committee members should indicate their approval (or disapproval) to a petition by initialing the appropriate boxes on page 3 of the Thesis Defense form. Specific comments from the thesis committee may also be included in a petition package.

The exemption petition package should be submitted via email to the DGP Office. As the Program Committee will need to meet for discussions, any petition must be submitted at least four weeks before the PhD materials submission date published by TGS for each quarter. The Program Committee expects that such exceptions will be granted only rarely.

**Please use the space on Page 3 of this form as part of any petition for permission to graduate without having met the publication requirement.**

**The members of the committee should initial the boxes on Page 3 to indicate their approval of petition.**

| Printed Names<br>of Committee Members | Initials of Committee<br>Members to Indicate<br>Approval of Petition | Approve or Disapprove of<br>Petition<br>(Circle one) |            |
|---------------------------------------|--|--|------------|
|                                       |  | Approve  | Disapprove |
|                                       |  | Approve  | Disapprove |
|                                       |  | Approve  | Disapprove |
|                                       |  | Approve  | Disapprove |
|                                       |  | Approve  | Disapprove |
|                                       |  | Approve  | Disapprove |

## Thesis Committee Verification Checklist

Learning and practicing the essentials of “Responsible Conduct of Research” (RCR) and “Rigor and Reproducibility” (R&R) are essential parts of graduate student training. While the DGP offers classroom instruction in these areas, the primary responsibility for establishing good practices in a student’s habits lies with the thesis advisor and other members of the student’s lab. In addition, the thesis committee can help insure that students understand and adhere to the best principles.

To aid in efforts to hold students accountable, the DGP asks that thesis committees use the checklist below as a starting point for questioning students and evaluating the student’s practice of RCR and R&R in their presentations to the committee and their written documents, particularly the dissertation. At the final stage, before approving a dissertation as complete, the committee should be assured that proper procedures have been followed and reported.

- ☐ Does the student indicate, in text and in figure legends, the number of times experiments have been repeated?
- ☐ Are replicates clearly identified as biological or technical?
- ☐ Has the student used appropriate statistical methods to determine the significance of the results?
- ☐ Are conclusions supported by adequate repetition of experiments?
- ☐ Are data and conclusions that are based on one or few observations labeled as preliminary?
- ☐ Are the methods written in sufficient detail in the dissertation to make it a useful resource for the lab and the broader scientific community?
- ☐ Has the student properly attributed any work that was done by others?  
Has the student generated their own new figures, especially for models of their system? If the student uses copied figures for the thesis, even from one of their published papers, has the student obtained permission and indicated that such permission was obtained?
- ☐ Has the student authenticated reagents (cell lines, animals, DNA constructs, etc) and properly notated the source(s)?

If possible scientific misconduct (fabrication, falsification or plagiarism) is found in the course of evaluating a student’s work, the committee should report the specific occurrence(s) to the DGP and to the NU Office of Research Integrity. If any data presented by a student, either in writing or oral presentations, is later found to violate the principles of RCR or R&R, a committee may revoke “Permission to Write” or may withdraw approval of a final defense.