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Plant Biology and Conservation Chicago Botanic Garden



Graduate Program Handbook

The Plant Biology and Conservation (PBC) Graduate Program

Welcome to the Plant Biology and Conservation Program! The PBC graduate program – begun in 2005 – is a partnership between Northwestern University (NU) and the Chicago Botanic Garden (CBG). There are three different degree tracks available: master’s degree with an internship, master’s degree with a research thesis, and a PhD. Students in all degree programs earn their degree from Northwestern University and work closely with faculty at both institutions. The primary mission of the PBC program is to foster an academic and research environment that allows students to gain experience, skills, and knowledge to become scholars, leaders, and practitioners in plant biology and conservation.

The PBC graduate program brings together basic and applied sciences faculty from NU and CBG and allows students to readily cross departmental and disciplinary boundaries in choosing courses and thesis committee members. The scientists at CBG have adjunct appointments at NU and typically serve as primary thesis advisors on students’ committees.

PBC faculty are committed to helping students prepare for career options that await them after the completion of their degree such as further academic training, employment with governmental or non-governmental agencies in land management and conservation, teaching at the college level, scientific journalism, science policy and administration and many other endeavors.

PBC students must meet all the basic requirements set forth by The Graduate School (TGS) relating to grades and satisfactory academic progress. This handbook provides additional information about requirements specific to PBC.

Northwestern University reserves the right to change without notice any statement in this publication concerning but not limited to, rules, policies, tuition, fee, curriculum, and courses.

The Graduate School's Statement on Nondiscrimination

Northwestern University prohibits discrimination on the basis of actual or perceived race, color, religion, creed, national origin, ethnicity, caste, sex, pregnancy, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship status, veteran status, genetic information, reproductive health decision making, height, weight, or any other class of individuals protected from discrimination under federal, state, or local law, regulation, or ordinance or any other classification protected by law in the matters of admissions, employment, housing or services or in the educational programs or activities it operates, as required by Title IX of the Education Amendments of 1972; Title III of the Americans with Disabilities Act of 1990, as amended in 2008; Section 504 of the Rehabilitation Act of 1973; Title VI and VII of the Civil Rights Act of 1964; the Age Discrimination Act of 1975; the Age Discrimination in Employment Act of 1967; and any other federal, state, or local laws, regulations, or ordinances that prohibit discrimination, harassment, and/or retaliation.

Title IX Statement

It is the policy of Northwestern University to comply with Title IX of the Education Amendments of 1972, which prohibits discrimination (including sexual harassment and sexual violence) based on sex in the University's educational programs and activities. Title IX also prohibits retaliation for asserting or otherwise participating in claims of sex discrimination.

The Title IX coordinator and the deputy coordinators (listed under [Our Staff](#)) have been designated to oversee Northwestern's compliance with Title IX and to respond to reports of violations. For more information about Title IX, go to Northwestern's [Title IX website](#). A person may also file a complaint with the Department of Education's Office for Civil Rights regarding an alleged violation of Title IX by visiting [the U.S. Department of Education's website](#) or calling (800) 421-3481.

TABLE OF CONTENTS

The Graduate School Statement on Nondiscrimination	3
MASTER’S DEGREE: THESIS TRACK	7
Typical Timeline And Milestones For Thesis Track Master’s Degree	7
Degree: Requirements	8
Research Advisor And Thesis Committee	9
Thesis Proposal	10
Annual Progress Review	10
Academic Probation And The Remediation Process	10
Written Thesis And Oral Defense	11
Checklist for MS Thesis Defense	11
Important Dates for Graduation	12
MASTER’S DEGREE: INTERNSHIP TRACK	13
Typical MS Internship Timeline And Milestones	13
Degree Requirements	14
Important Dates For Graduation	14
PHD DEGREE	15
Typical PhD Timeline And Milestones	15
PhD Degree Requirements	16
PhD Advisor And Dissertation Committee	18
PhD Annual Progress Reviews	18
Academic Probation and the Remediation Process	19
PhD Qualifying Exam And Prospectus	19
PhD Dissertation	22
Permission to Write and Dissertation Outline Approval	22
Setting the Date for the Final Examination (Dissertation Defense)	22
Final Examination (Dissertation Defense)	22
Public Presentation of Dissertation	23
Other Requirements	23
Teaching Responsibilities for PhD Students	23
Seminars	23
Proficiency	23
International Students	24
ORIENTATION AND REGISTRATION INFORMATION FOR FIRST-YEAR MS AND PhD STUDENTS	24
E-Mail	25
Registration	25
COURSEWORK	26
PBC and other Northwestern courses	26
Courses at Other Universities	26
Additional Information	26

ACADEMIC INTEGRITY	27
FUNDING INFORMATION	28
MS Program	28
PhD Program.....	28
Travel and Research Awards.....	28
Departmental Awards	28
Additional Funding Opportunities.....	29
ACADEMIC AND PROFESSIONAL RESOURCES	30
STUDENT LIFE RESOURCES	36
Northwestern’s Office of Community Standard	36
Northwestern’s Office of Community Enrichment	36
Northwestern’s Office of Civil Rights & Title IX Compliance	36
Non-Discrimination and Non-Harassment Policies and Procedures at Chicago Botanic Garden	34
Conflict Resolution	35
Campus Life.....	36
Health Insurance Coverage	36
Housing Resources	37
Student Leave Policy	37
Dependent Care Grant.....	37
Legal Services.....	37
Student Counseling Services	37
ADDITIONAL INFORMATION AND POLICIES	38
ID Card/Wildcard	38
Parking Permits.....	38
Payroll.....	38
Taxes.....	38
Social Security Cards for International Students.....	38
Other Degree Programs or for-Credit Coursework	39
Outside Employment for PhD Students	39
PBC Student Website Guidelines	39
Graduate Student Union.....	39
Chicago Botanic Garden.....	40
CBG ID Card.....	40
PBC COMMITTEES AND STAFF	41
APPENDIX I: Instructions for archiving MS theses	47

MASTER’S DEGREE: THESIS TRACK

TYPICAL TIMELINE & MILESTONES FOR THESIS TRACK MASTER’S DEGREE

The Chicago Botanic Garden and Northwestern University offer a research thesis track Master of Science in Plant Biology and Conservation. Students receive a strong foundation in plant ecology, evolution, and conservation and can choose to specialize from a variety of research areas. Students typically take between two to two and a half years to complete the degree, with all course work completed in year one and research emphasized in year two. Below is an overview of a typical timeline. Please see the next section for more details.

Qtr	Year 1	Year 2
Fall	<ul style="list-style-type: none"> • PBC 450 (2 units) • PBC 451 (1 unit) • Up to 1 elective • Milestones: • Complete <i>Thesis Research Advisor Agreement</i> form if you have identified your advisor • Consider applying for research grants 	<ul style="list-style-type: none"> • No courses, register for TGS 512: Continuous Registration • Work on research/thesis
Winter	<ul style="list-style-type: none"> • Course or Independent Study in Statistics or Data Science – see Appendix 1 for details • PBC 499 (1 – 2 units; requires Approval for Independent Study form and permission number) • 1 – 2 electives (usually including PBC 401 and/or PBC 402) • Milestones: <ul style="list-style-type: none"> - Apply for research grants - Complete <i>Thesis Research Advisor Agreement</i> form if you have identified your advisor 	<ul style="list-style-type: none"> • No courses, register for TGS 512: Continuous Registration • Work on research/thesis • Complete the <i>Application for Degree</i> form in GSTS if you plan to graduate in June
Spring	<ul style="list-style-type: none"> • PBC 499 (1 unit, requires form and permission number) • 2 – 3 electives • Milestones: <ul style="list-style-type: none"> - Finalize formation of thesis committee - Submit <i>Thesis Advisor Agreement</i> Form if you have not yet done so - Complete thesis proposal and submit form - Start research (if you haven’t already) - Apply for research grants 	<ul style="list-style-type: none"> • No courses, register for TGS 512: Continuous Registration • Complete <i>Master’s Degree Completion</i> form in GSTS if you plan to graduate in June • Defend thesis and graduate
Summer	<ul style="list-style-type: none"> • No registration required • Work on research 	<ul style="list-style-type: none"> • Progress review if not yet graduated

NOTES: Students requesting class permission codes for [PBC-499](#) must submit a signed agreement [to this link](#). Class permission codes for these sections will only be provided upon receiving a complete and signed submission of the student-faculty agreement. Updated instructions to elaborate on the agreement are available in the link above. **Please consider that PBC-499 units must not exceed half of the total units taken in the first three quarters at PBC.** Learn more about [these guidelines here](#), or contact PBC’s [Program Assistant](#) if you need more information about this subject.

DEGREE: REQUIREMENTS

The Graduate School (TGS) sets [minimum requirements](#) for all graduate degrees. The Program in Plant Biology and Conservation has additional requirements for the thesis track Master's degree. Many of the necessary forms that students will need can be found [here](#). The requirements are as follows:

- TGS requires that students meet the minimum course requirements. To be eligible for a Master's degree, a student must successfully complete (minimum cumulative GPA 3.0 with no X, Y, K, or NR grades on the transcript) at least nine letter graded courses (non-P/NP) authorized for graduate credit and meet the minimum requirements of the equivalent of three quarters of full time registration. Plant Biology and Conservation has additional course expectations, which include the successful completion of 11 letter graded units. Note, it is possible to take up to 2 of those units with courses that do not carry graduate credit, but you must first get permission from your advisor and the Director of Graduate Studies.
- Credit earned at an undergraduate institution or at another graduate school or a professional school may, with program approval, be applied towards the program's coursework requirements above nine units, but not toward the minimum requirement, for a master's degree at Northwestern University.
- Students must complete all the degree requirements within the approved timeline. For the Master's degree, requirements must be completed within five years of the date of initial registration in The Graduate School.
- Students must form a thesis committee and defend their [thesis proposal](#) by the spring of their first year in the program. Failure to do so can be considered unsatisfactory academic progress.
- Students will complete a written thesis and an oral thesis defense. After the written thesis is submitted, a public presentation of the thesis is given, followed by a defense with the student's committee. It is recommended that the defense is completed by the summer of year two.
- [Satisfactory Academic Progress](#) must be maintained by all students. A student will not be in good academic standing if they have an overall grade average below B (3.0 GPA, or any single grade below C), has more than three incomplete grades, fails to pass the proposal defense by end of year 1, or fails to make satisfactory progress with research as determined by the student's thesis committee.

RESEARCH ADVISOR AND THESIS COMMITTEE

Research Advisor

Some Master's students will enter the PBC graduate program with a selected research advisor, while some will not. To introduce students to the research that is happening in the program, and provide information on potential advisors, NU/CBG scientists will present short seminars on their research during the fall quarter. In addition, Independent Study courses (PBC 499, typically taken in the winter and spring quarters of year one) will facilitate the mentor selection process. All students must secure a thesis advisor by spring quarter of year one and submit the Thesis Research Advisor Agreement [form](#) to the PBC program assistant. The selection of a thesis committee is the joint responsibility of the student and thesis advisor. If at any point the student or advisor believes it would be in the best interest of the student to change advisors, a new advisor may be chosen, and a new Thesis Advisor Agreement form must be submitted to the PBC office.

It is recommended that Master's students fill out an *MS Individual Development Plan (IDP)* [form](#) with their research advisor by the spring quarter of year one. This plan outlines the goals and expectations of both the student and advisor and can be used to assess progress toward the degree during progress reviews.

Master's Thesis Committee

Students will form their thesis committee by the spring quarter of their first year. The thesis committee must be made up of at least 3 people, two of whom must be members of the Northwestern TGS faculty (this includes faculty based at NU as well as adjunct faculty from CBG). The student's research advisor counts as one of these faculty members. The third member may be from an outside institution, but this is not required.

THESIS PROPOSAL

Students will present a thesis proposal to their committee in the spring of year one (and no later than the end of their first year). Students turn in a written research proposal to their committee 2 weeks before the thesis proposal meeting. Details about proposal requirements and the process for the meeting can be found [here](#). After the meeting, the committee members and the student complete and sign the Master's Thesis Proposal [Form](#). This form is turned in to the PBC program assistant after the proposal meeting and serves as documentation of committee membership. If at any point the student and advisor agree a change should be made to the committee, this may be done by submitting a written notification of the change to the PBC Program Director. Information and forms about the thesis proposal can be found on the website under [MS Resources](#). If the student does not pass the thesis proposal, the committee will provide feedback for improving the proposal and provide an expected timeline for submitting and presenting a revised proposal. This must be done no later than fall of year two. If the student does not pass after the second attempt, they may be put on academic probation.

ANNUAL PROGRESS REVIEW

After the thesis proposal meeting, students must have a minimum of one committee meeting per year. However, it is often advisable to have more or to keep your committee up to date with your progress. Progress is measured in terms of successful completion of coursework and meeting research goals as outlined in the thesis proposal. Often, Master's students will defend their thesis and graduate in year two, so an annual review is not required. However, if the student has not graduated within two years of starting the program, an annual review meeting with the student's committee is required no later than summer quarter of year two. After the meeting, the Annual Progress Review [form](#) must be filled out and turned in to the PBC program assistant.

ACADEMIC PROBATION AND THE REMEDIATION PROCESS

If the student's committee is concerned about the progress of the student, the committee members may find it necessary to organize additional progress reviews. There are three sets of criteria that TGS considers in determining whether students are making satisfactory academic progress: GPA, milestone deadlines, and program length. When a student fails to meet any of the three sets of criteria established, the student will be placed on probation by The Graduate School. If a student does not re-establish satisfactory academic standing during two probationary quarters and does not successfully petition for an extension of the probationary period, the student will become ineligible to receive financial aid and will be excluded (dismissed) from The Graduate School. If a student is on academic probation, they may also be excluded from consideration for PBC travel and research awards. Refer to TGS policy on [satisfactory academic progress](#), [academic probation](#), and [petition process](#) for more details.

WRITTEN THESIS AND ORAL DEFENSE

Master's students are expected to defend their thesis to their committee by the end of the second year in the program. The defense will consist of a research presentation open to the public (scheduled for ~1 hour including questions), followed by the oral defense/final exam to just the thesis committee (schedule 2 hours for this). During the committee defense, committee members will focus their questions on the issues pertaining to the thesis research, but more general questions relevant to the research subject are also appropriate. All committee members will sign off on the [Thesis Defense Decision form](#) with a committee decision regarding whether the student has passed or not. If revisions or re-examination are necessary, the committee will specify details. The committee will also indicate a deadline for the revisions or re-examination and consequences for not meeting the deadline. At this point, a copy of the Thesis Defense Decision form should be turned into the PBC program assistant. Students should retain the original for themselves if revisions or re-examination is expected. Once revisions are made and approved, the student will turn in a PDF version of the final approved thesis along with the signed *Thesis Defense Decision* form to the PBC Program Director. At this point the student has met the thesis requirement of the degree. If a student has not turned in the revised thesis within a year after the defense, the student must re-defend the thesis and incorporate discussion of all newly published data in the area of study. Bound theses of PBC alumni are available at the CBG library (in the Plant Conservation Science Center) or in PDF format upon requests to the PBC Program Assistant or Program Director.

Details about the defense and thesis formatting can be found in the [MS Thesis Format/Defense Guidelines](#) document.

CHECKLIST FOR MS THESIS DEFENSE and Graduation

- Watch for graduation deadlines for each quarter and fill out the *Application for Degree* form and the *Master's Degree Completion* form through [GSTS](#) by the appropriate deadlines.
- Schedule a defense date well in advance so that you can find a date that works for all your committee members and you can reserve a room.
- Defenses can be held at NU or CBG or via zoom. Your advisor will help you reserve space at CBG. Contact the PBC program assistant for a room reservation at NU. Schedule at least 3 hours for the defense.
- Outside committee members that are not local may video conference into the defense if they are not able to physically be there and you are conducting your defense in person. It is the student's responsibility to make the arrangements for this.
- Your thesis must be submitted to your committee members at least 2 weeks before the thesis defense. Before submission, you should have gone through multiple drafts and revision with your major advisor.
- Be sure to schedule your defense to allow ample time to make revisions for the graduation deadline (often students aim to have at least 2 weeks for revision).
- Once your defense date, time and location have been settled, contact the PBC program assistant with the thesis title, date, time and location as well as an image that can be used for a flyer to advertise the defense.
 - Bring or email the [MS Thesis Defense Decision](#) form to the defense.
- If no revisions are necessary, turn in the signed form to the PBC Program Director after the defense. If revisions are necessary, keep the original for the final approval signing by your research advisor.
- By the graduation deadline date, upload the final fully signed form along with your final revised and approved thesis to GSTS. Send an email to the PBC program assistant and program director (with your advisor cc'd) when this has been completed. At this point you can be approved to graduate. Congratulations!
- Upload your final thesis to be digitally archived in the NU library by following the step in the Final Thesis Upload guide, located in the [resources](#) section from our website.

- If revisions are necessary, make appropriate revisions by the deadlines stipulated by the committee and get the necessary signatures for final approval of the revised thesis.
- If re-examination is required, schedule the defense by the deadline stipulated by the committee
- Once your committee has approved all final revisions, upload your final draft and your MS thesis defense decision to your GSTS portal. See [these guidelines for uploading](#) files to GSTS. Likewise, turn in the signed MS Thesis Defense Decision form with all appropriate signatures, and email the PDF version of the final approved thesis to the PBC Program Assistant.
- You have now completed your thesis requirement toward your graduation.

IMPORTANT DATES FOR GRADUATION

To graduate, students must complete the *TGS Application for Degree* form (approximately two months before the quarter graduation deadline) and the *TGS Master's Degree Completion* form (approximately one month before the quarter graduation deadline). Students should plan their thesis defense at least 2-4 weeks before the deadline for submission of the *Master's Degree Completion* form to allow time for revisions. These forms are accessed through GSTS. Please see the chart below for approximate dates, but check the [University Academic Calendar](#) for the exact dates for your year.

Graduation Quarter	Defend thesis by	Application for Degree form due	Master's degree completion form due
Fall	End of November	Early November	Early December
Winter	Mid-March	Early February	Mid March
Spring	End of April	Mid April	Mid May
Summer	End of July	Mid July	Mid August

MASTER’S DEGREE: INTERNSHIP TRACK

The Chicago Botanic Garden and Northwestern University offer an internship track Master of Science in Plant Biology and Conservation. Students receive a strong foundation in plant ecology, evolution, and conservation and can choose to specialize in an area of interest through an internship. Students typically take one year to complete the degree, with all coursework completed in one academic year and an internship completed in the summer. Below is an overview of a typical timeline. Please see the next section for more details.

TYPICAL MS INTERNSHIP TIMELINE AND MILESTONES

	Year 1
Fall	<ul style="list-style-type: none"> • PBC 450 (2 units) • PBC 451 (1 unit) • 1 elective (optional)*; potentially a course or Independent Study in Statistics or Data Science – see Appendix 1 for details
Winter	<ul style="list-style-type: none"> • Course or Independent Study in Statistics or Data Science – see Appendix 1 for details • 2 electives (often PBC 401 and/or 402) • Organize internship for spring or summer
Spring	<ul style="list-style-type: none"> • 2 electives. One elective may be PBC 499 if you are starting your internship • One additional elective (optional)* • Begin internship if it is to start in the spring
Summer	<ul style="list-style-type: none"> • Complete internship and turn in all required materials

*Students are required to register for at least 3 units each quarter. However, you may register for up to 4 units each quarter.

- NOTES: Students requesting class permission codes for [PBC-499](#) must submit a signed agreement [to this link](#). Class permission codes for these sections will only be provided upon receiving a complete and signed submission of the student-faculty agreement. Updated instructions to elaborate on the agreement are available in the link above. Please consider that PBC-499 units **must not** exceed half of the total units taken in the first three quarters at PBC. Learn more about [these guidelines here](#), or contact PBC’s [Program Assistant](#) if you need more information about this subject.

DEGREE REQUIREMENTS

The Graduate School (TGS) sets [minimum requirements](#) for all graduate degrees. The Program in Plant Biology and Conservation has additional requirements for the internship track master's degree. The requirements are as follows:

- TGS requires that students meet the minimum course requirements. To be eligible for a Master's degree, a student must successfully complete (with a minimum GPA of 3.0 with no grades below a C) at least nine letter graded courses (non P/NP) authorized for graduate credit and meet the minimum requirements of the equivalent of three quarters of full time registration. The Plant Biology and Conservation course expectations are as follows:
- **Three required courses comprising 4 units** (PBC 450 – 2 units, PBC 451 – 1 unit, and a 1 unit course or Independent Study in Statistics or Data Science – see Appendix 1 for details. PBC 450 is a 2 unit course; all other courses are 1 unit)
- **Five electives** (two of which are recommended, but may be substituted if student shows previous coursework in these areas: PBC 401 and PBC 402)
- Students must complete all the degree requirements within the approved timeline. For the Master's degree, requirements must be completed within five years of the date of initial registration in The Graduate School.
- Students work with the Internship Advisory Committee to set up an internship to meet the internship requirement for the degree. Students are expected to complete at least 240 hours of an internship and have a tangible product that it is turned in upon completion of the internship, along with evaluation forms from the student and internship host. More information and forms can be found [here](#).
- Satisfactory Academic Progress must be maintained by all students. A student will not be in good academic standing if they have an overall grade average below B (3.0 GPA, or any single grade below C), have more than three incomplete grades, fail to pass the proposal defense by end of year one, or fail to make satisfactory progress with research as determined by the student's thesis committee. Additional information can be found [here](#).

IMPORTANT DATES FOR GRADUATION

To graduate, students must complete the *TGS Application for Degree* form (approximately two months before the quarter graduation deadline) and the *TGS Master's Degree Completion* form (approximately one month before the quarter graduation deadline). These forms are accessed through GSTS. The chart below has approximate dates, but check the [University Academic Calendar](#) for the exact dates for your year.

Graduation Quarter	Defend thesis by	Application for Degree form due	Master's degree completion form due
Fall	End of November	Early November	Early December
Winter	Mid-March	Early February	Mid March
Spring	End of April	Mid April	Mid May
Summer	End of July	Mid July	Mid August

PHD DEGREE

Below is an overview of a typical timeline for the PhD degree. Some milestones may vary. Please see the next section for more details.

TYPICAL PHD TIMELINE AND MILESTONES

	Fall	Winter	Spring	Summer
Year 1	<ul style="list-style-type: none"> • PBC 450 (2 units) • PBC 451 (1 unit) • 1 elective (1 unit, optional) • Submit Dissertation Advisor Form 	<ul style="list-style-type: none"> • Course or Independent Study in Statistics or Data Science – see Appendix 1 for details • Up to 2 elective units (suggested PBC 401 and/or 402) 	<ul style="list-style-type: none"> • 3 elective units • 1 unit PBC 590* • Form and meet with dissertation committee & submit dissertation committee form 	<ul style="list-style-type: none"> • 3 units of PBC 590 • Consider applying for research grants
Year 2	<ul style="list-style-type: none"> • 1 elective (1 unit) • 2 units of PBC 590 • Apply for research grants • TA 1 quarter during year • Annual review meeting 	<ul style="list-style-type: none"> • 1 elective (1 unit) • 2 units of PBC 590 • PA or RA 	<ul style="list-style-type: none"> • 1 elective (1 unit) • 2 units of PBC 590 • Qualifying exam • PhD Prospectus • Present in PBC seminar series • PA or RA 	<ul style="list-style-type: none"> • 3 units of PBC 590 • RA
Year 3	<ul style="list-style-type: none"> • TGS 500 • Annual Review meeting • TA 1 quarter during year 	<ul style="list-style-type: none"> • TGS 500 • PA or RA 	<ul style="list-style-type: none"> • TGS 500 • PA or RA • Present in PBC seminar series 	<ul style="list-style-type: none"> • TGS 500 • RA • Latest allowed completion of Qualifying Exam and PhD Prospectus
Year 4	<ul style="list-style-type: none"> • TGS 500 • TA 1 quarter during year if have not done 2 quarters of TA yet. • Apply for research grants • Annual Review meeting 	<ul style="list-style-type: none"> • TGS 500 • PA or RA 	<ul style="list-style-type: none"> • TGS 500 • Should have applied for external grants by now • Present in PBC seminar series • PA or RA 	<ul style="list-style-type: none"> • TGS 500 • RA
Year 5	<ul style="list-style-type: none"> • TGS 500 • PA or RA <ol style="list-style-type: none"> 1. Annual Review meeting 	<ul style="list-style-type: none"> • TGS 500 • PA or RA 	<ul style="list-style-type: none"> • TGS 500 • PA or RA • Defend and turn in dissertation • Graduate 	

*PBC 590 is used to bring your total units/quarter to 3 units. You can manage your elective and PBC 590 units for each quarter during your first two years as appropriate for you. The above scenario is just an example.

NOTES: Students requesting class permission codes for PBC-499 must submit a signed agreement [to this link](#) (if eligible). Class permission codes for these sections will only be provided upon receiving a complete and signed submission of the student-faculty agreement. Updated instructions to elaborate on the agreement are available in the link above. Please consider that PBC-499 units **must not** exceed half of the total units taken in the first three quarters at PBC. Learn more about [these guidelines here](#), or contact PBC's [Program Assistant](#) if you need more information about this subject.

PHD DEGREE REQUIREMENTS

The Graduate School (TGS) sets [minimum requirements](#) for all graduate degrees. The Program in Plant Biology and Conservation has additional requirements for the PhD degree as outlined below.

- **Coursework:** Students must complete a total of 13 units of credit. These include the following. Note, it is possible to take up to 4 of those units with courses that do not carry graduate credit, but you must first get permission from your advisor and Director of Graduate Studies.
- **Satisfactory academic progress** must be maintained by students, or they will risk losing funding or being dismissed from the program. A student will not be in good academic standing (and will be put on academic probation) if they have an overall grade point average below B (3.0 GPA), any single grade below C, have more than three incomplete grades, fail to pass the qualifying exam by the end of their third year, or fail to make satisfactory progress with research as determined by the student's dissertation committee or in their teaching assistant (TA) and project assistantship (PA) assignments. Some additional details about expectations follow:
 - a. At a minimum, students must have at least one committee meeting each year to maintain satisfactory academic progress. The first committee meeting must be no later than spring of year 1 to maintain satisfactory academic progress. More information about annual progress reviews is below.
 - b. Attendance at weekly PBC seminar series and lab meeting is required.
 - c. Annual public presentation of research at PBC seminars in years 2 and beyond is required to maintain satisfactory academic progress.
 - d. Satisfactory performance in TA assignments is required to maintain satisfactory academic progress. The number of teaching assignments will vary with total graduate student enrollment and course needs, but there is a minimum requirement of **two-quarters of teaching**. There might be more than two assignments, but two is the minimum.
 - e. Satisfactory performance in PA assignments is required to maintain satisfactory academic progress.
- **Annual Progress Reviews** – to maintain satisfactory academic progress, students must have annual progress reviews with their committee and submit the [annual progress review form](#) to the Program Assistant upon completion of the review. More information can be found in sections below.
- **Qualifying Examination and Prospectus** – The Qualifying Examination is an important checkpoint meant to demonstrate that a student is progressing on their dissertation research toward the Ph.D. degree. It includes the preparation of a written research proposal (*Prospectus*), along with an oral presentation of the proposal and progress to date, followed by questioning from a committee about the work and related topics. The committee will either approve this or request additional work. This must be successfully completed at least three months before the defense date. However, we recommend that you complete this much earlier. See sections below for more details and timeline for this milestone.
- **Permission to Write and Dissertation Outline Approval** - At the “permission to write” meeting, the student will provide an overview/outline of all the experiments and analysis they plan to include in the dissertation.

- **Dissertation and defense** – The advisor, the student, and the committee together determine the appropriate timeline for writing and submitting the dissertation. Each student must complete an original research study and produce a dissertation acceptable to the dissertation committee. More information can be found in sections below. It is expected that students will complete their dissertation defense by the end of year 5 to maintain satisfactory academic progress. Funding beyond year 5 is not guaranteed.
- **Public Presentation of Dissertation** – Upon successful completion of the dissertation defense, students will schedule a public presentation of their dissertation research. This should occur within 2 months of the defense.
- **Publication requirement** – All PhD candidates must have a publication based on their research from their PhD research submitted for review before receiving the PhD degree. This may be in a peer- reviewed journal or other type of publication (e.g., a book chapter or a management report).

PHD ADVISOR AND DISSERTATION COMMITTEE

PhD Research Advisor

Upon arrival at Northwestern, PhD students should have identified a major research advisor. Student and advisor should complete the *Dissertation Research Advisor Agreement* form to indicate their plan to work together. The advisor will help the student decide which classes to take during years one and two. The advisor must approve all electives. Student and advisor should meet regularly (for example, every other week). Students should also feel free to consult their advisor or the PBC Program Director as need arises throughout the year. It is of particular importance that students contact their advisor and/or the PBC Director if they are experiencing problems with any courses, or any other aspect of the PBC program. If at any point the student or the advisor believes it would be in the best interest of the student to change advisors, a meeting should be arranged with the student, current advisor, proposed new advisor, and Program Director to discuss the change. If it is determined that a new advisor should be chosen, a new *Dissertation Research Advisor Agreement* form must be uploaded to your GSTS portal and submitted to the PBC office. If the student is unable to find a new advisor, then they might be asked to leave the program.

The research advisor is also responsible for helping students form their qualifying exam and dissertation committee, and for helping to remind students to schedule annual meetings with their committee. Scheduling the annual committee meeting is the responsibility of the student. More information about this can be found below.

Dissertation Committee

The selection of a dissertation committee is the joint responsibility of the student and the graduate advisor. Dissertation committees will be composed of at least four members, two of whom must be TGS faculty (includes all full-time NU faculty and CBG adjunct faculty), and one of whom is an outside reader from an institution other than NU or CBG. Students will form and meet with their committee by the end of their first year, at which point a *PhD Annual Review* form should be submitted to the PBC office. If at any point the student and advisor agree a change should be made to the committee, this may be done by submitting a written notification of the change to the PBC Program Director. Outside committee members that are not local may call in/video conference/Zoom into committee meetings. It is the student's responsibility to make the arrangements for this if necessary.

PHD ANNUAL PROGRESS REVIEWS

PhD students should fill out an [*Individual Development Plan \(IDP\)*](#) by the fall quarter of year 2 with their dissertation advisor. This plan outlines the goals and expectations of both the student and advisor and will be used to assess progress toward the degree during progress reviews with the dissertation committee each fall, starting in year 2. Shortly after the student and advisor fill out the IDP in the fall, the form should be discussed at the student's annual progress review meeting with the dissertation committee so that everyone is aware of, and in agreement with, the expectations. **Then the filled in pdf version, a signed hard copy, and the [PhD Annual Review form](#) must be submitted to the PBC program office. The annual review form must be signed by all committee members.** The meetings provide an opportunity for students to discuss their work with scientists from outside the student's immediate circle. They serve to assess the student's progress toward the PhD degree but are not intended to be examinations.

Progress is measured in terms of successful completion of coursework and meeting research goals. A student's first committee meeting should be held no later than spring of year one. After that, progress reviews must be conducted annually starting in fall of year two. Students are responsible for scheduling the annual meetings with their committee. A copy of the annual review form will be kept in each student's file. Additional committee meetings may be arranged throughout the year as deemed appropriate by the student and/or advisor.

ACADEMIC PROBATION AND THE REMEDIATION PROCESS

If the student's committee is concerned about their progress, the NU/CBG faculty members of the committee may find it necessary to organize additional progress reviews. If there are only two NU/CBG faculty members on the committee, the PBC Director will sit in on the additional meeting. If a student is not making satisfactory academic progress (see above for details on what constitutes satisfactory academic progress), they may be excluded from consideration for PBC travel and research awards and put on academic probation. The student may then have up to two quarters (excluding summers) to achieve satisfactory academic progress. If satisfactory progress is not achieved after two quarters of being placed on academic probation, the student will be dismissed from the program.

PHD QUALIFYING EXAM AND PROSPECTUS

Qualifying Examination and Prospectus

The exam will be overseen by the student's committee and will include written and oral components (described below). The written component must be submitted to committee members no later than 2 weeks before the date of the exam. It is strongly encouraged that all students take their qualifying exam by the end of the summer of year two. After passing the qualifying exam, students advance to PhD candidacy. By completing the exam in year two, students are well positioned to apply for grants that require candidacy, and it prepares them well for summer fieldwork. Also, if the committee requests that the student re-take the exam, there is still time to do so. If a student needs to take the qualifying exam later than summer of year two, they must get permission from their committee ahead of time. To do this, the student must prepare a brief explanation justifying the reasons for a delayed exam. This explanation must be approved by their committee and sent to the PBC program director. If a student does not pass the qualifying exam by the end of the summer of year three, they will be put on academic probation. If a student does not pass the exam within two quarters (excluding summers) of being placed on academic probation, the student will be dismissed from the program.

Written Component of Qualifying Exam: PhD prospectus

The prospectus serves as a concise overview of the entire PhD research project and serves as a guide for expectations on a student's dissertation research going forward. It should be a narrative organized by proposed chapters that gives the entire committee a clear "big picture" perspective on your work and how it all fits together. A prospectus must contain four proposed chapters, but only three chapters are required in the final dissertation to meet the requirements of the PBC program. Examples of past, successful prospectuses can be requested from the Program Assistant or Program Director.

Information for each expected dissertation chapter should include the following sections:

There is no specified length for the proposal, but we offer guidelines for each section. Keep your proposal clear and concise.

a.) Project summary/abstract

- Approximately 300 – 350 words summarizing points b – f
- Do not exceed one page.

b.) Project background

- 2–3 double-spaced pages (standard font size and margins)
- This section should start by providing broad, general context for the work and gradually narrowing into the study questions and objectives.

- Include a clear argument for why the work is important. How does it advance basic science and/or applied science and conservation?

c.) Research Objective(s), Questions, & Hypotheses

- A one to two sentence statement of the primary research objective or objectives that states the primary goal or goals of the research.
- Specific research questions and their associated hypotheses should be clearly stated and numbered (Q1, H1a, H1b; Q2, H2, etc).
- Hypotheses should be written as “biological hypotheses”. For example, *“If white bark pine is water limited, then we expect contractions in the drier parts of its geographical range”*. This contrasts with a static hypothesis, which is still valuable, but lacks important biological context. For example: *“We expect to find no difference in tree abundance across the range”*.
- For each hypothesis, students should consider at least one alternative hypothesis (including its explanation). For example, the primary hypothesis might be: *“If white bark pines are water limited, then we expect contractions in the drier parts of their range”*. And the alternative hypothesis might be: *“Alternatively, if white bark pines are limited by seed dispersal by birds, then we expect to find fewer trees in areas with lower bird density.”*

d.) Materials & Methods

- This section should be detailed enough to allow the committee to evaluate whether your plan is realistic and achievable.
- These sections vary greatly in length but are often between 2–6 double spaced pages.

e.) Analyses

- Make sure that you include an analysis to address each of your questions. It is often helpful to directly link each analysis to each question. For example, *“To address whether white bark pine is water limited, I will...”*

f.) Preliminary Results

- If you have any preliminary results, include those in paragraph form.

g.) Literature cited

- You can follow any style of citations as long as the following information is included for each citation: authors, year, title, journal name, volume, and page range.
- You might want to consider using free citation software, like Zotero, that allows you to enter and format citations in Word, as opposed to entering each one manually.

Oral Component of Qualifying Exam

Students should prepare a **succinct 15-minute** presentation of the proposed research. The committee should have read the prospectus and not need a complete reiteration of its contents. Delivery of the presentation will be followed by questions from the committee. Students should be prepared to address questions from the committee members on broad topics associated with their research. Precise details of the format of the oral examination are at the discretion of the committee. Each student should consult with the committee at least one month before (although much earlier is advised) their exam to establish the specific knowledge expectations for the oral exam.

Students should also request a recommended reading list from the committee members well before the exam. One effective way to do this is to send committee members a list of publications/resources you have already read or plan to read for your research and organize this list by topic. Ask the committee members what additional publications/resources you should be familiar with.

Evaluation

During the qualifying examination, the examination committee will ask the student questions about the proposed research as well as general questions to assess the student's knowledge base and identify any gaps that will need attention. The quality of the prospectus, performance in the oral examination, performance in coursework, research aptitude, research accomplishments in the program, and performance in TAs and PAs will all be considered by the committee members to evaluate the student's advanced understanding in biology and specifically in the field of plant biology and conservation in order to assess whether the student has the necessary knowledge base to proceed in the PhD program with their proposed research. Students must demonstrate satisfactory performance in all categories to be admitted to candidacy. Keep in mind that this is not a time for students to ask the committee questions or seek guidance on their research plan. While a few items may come up, that type of interaction should be conducted during committee meetings. This is an exam. Students should also bring a list/unofficial transcript of all graduate courses completed so that the committee can determine if additional coursework is necessary.

Results of Examination

Students must bring appropriate forms to the qualifying exam to be completed by the committee and then turn them into the program assistant. These forms are the [qualifying exam form](#) and the [prospectus form](#). There may be circumstances in which students do not pass the exam. See the section below for more information on failure to advance to candidacy.

Notification to the Graduate School Regarding Qualifying Exam

It is the responsibility of the student to complete the TGS *PhD Qualifying Exam Form* and *PhD Prospectus Form* in GSTS. It is the responsibility of the dissertation committee chair to contact the PBC Program Assistant and Director with the results of the qualifying exam and to turn in the signed *PhD Qualifying Exam* form to the PBC Program Assistant and Director. It is the responsibility of the student to turn in a pdf of the PhD Prospectus to the PBC Program Assistant and the Director. In the case of a pass, official notification will be sent to The Graduate School indicating the PhD student passed the examination. Students are notified via email by The Graduate School of their admission to candidacy.

Failure to Advance to Candidacy

For students whose performance in any of the qualifying exam categories (advanced understanding of biology, successful completion of courses, research aptitude, research accomplishment as demonstrated through the qualifying exam and previous research, and performance in PA and TA positions) is judged insufficient for advancement to candidacy, three alternatives are available and are up to the discretion of the committee and approval by the PBC Executive Committee. In any of the scenarios below, student funding will be affected.

1. If the committee determines that the student has the potential to pass with further preparation, the student may make a second attempt later. If the committee chooses this option, the committee members will inform the student what they need to do to prepare and will give the student a date by which to complete the 2nd qualifying exam. However, it must be successfully completed no later than summer of year three, or the student will be put on academic probation or will be dismissed from the

program. If a student fails to pass the 2nd exam, they will be dismissed from the program, or one of the options below may remain possible at the discretion of the committee.

2. After the first attempt at the qualifying exam, the committee may decide that the student will not be given a second chance to take the qualifying exam but that the work accomplished is sufficient to merit consideration for a terminal Master's degree. It is also possible that after a 2nd failed attempt to pass the qualifying exam this route may be recommended by the committee. Contact the Program Director for details about this process. In this scenario, the thesis must be written in the format of a Master's thesis and defended before the student's committee, which is generally reconstituted from the qualifying exam committee. The awarding of a terminal Master's degree by PBC should reflect significant achievement by the degree recipient. A terminal Master's degree will be awarded by The Graduate School upon recommendation by the program director acting on the advice of the student's committee.
3. If the committee decides that the student's performance is insufficient for either of the two above options, the student will be dismissed from the program with no degree.

PHD DISSERTATION

The advisor, the student, and their committee together determine the appropriate timeline for writing and submitting the dissertation. Each student must complete an original research study and produce a dissertation acceptable to the dissertation committee. Doctoral research usually begins in the summer quarter of the first academic year and continues uninterrupted until all the requirements for the PhD degree have been met and a satisfactory dissertation has been completed. The dissertation must contain at least three chapters. The program expects students to have authored publications over the course of their degree and it is required that at least one first-author data paper is submitted by the time of the defense. All requirements for the PhD degree must be met within nine years of initial registration in the doctoral program. A comprehensive list of requirements for the PhD degree can be found in the previous sections.

PERMISSION TO WRITE AND DISSERTATION OUTLINE APPROVAL

At the “permission to write” meeting, the student will request permission to write his or her dissertation. In preparation for this meeting, the student will submit a detailed dissertation outline. At the meeting, the student will discuss the experimental results and defend the conclusions to be described in the dissertation. The outline must be submitted to the final exam committee members at least two weeks prior to the “permission to write” meeting. During the meeting, the committee will determine whether additional experiments or substantial alterations to the proposed dissertation outline are required prior to scheduling the final exam. Where appropriate, contingencies regarding the outcomes of requested experiments should be agreed upon during this meeting as indicated on the *Dissertation Outline Approval* form. The signed form must be uploaded to your GSTS portal and submitted to the PBC office.

SETTING THE DATE FOR THE FINAL EXAMINATION (DISSERTATION DEFENSE)

Once the date for the final examination has been determined, the student must:

- Access the *TGS PhD Final Exam* form (this can be found under TGS Forms in GSTS), fill in the requested information, and submit via GSTS.
- Obtain from the PBC website the *PhD Examination Committee Report* form, complete the appropriate sections, and take the form to the exam. At the conclusion of the exam, the form must be signed by each of the committee members and returned, completed, to the PBC program office. If the student passes (with or without conditions), the student will be required to follow the TGS guidelines for [degree completion](#).

FINAL EXAMINATION (DISSERTATION DEFENSE)

Two weeks prior to the final exam, students will present their committee with the written dissertation. A complete guide to the writing of the dissertation is available from The Graduate School and should be consulted for stylistic requirements. The document is called: [Format Guidelines for Doctoral Dissertations](#). **It is expected that the student’s advisor will have read and approved the dissertation prior to its submission to the committee.** The oral presentation associated with the final exam meeting can be conducted in one of two ways, up to the discretion of the student and advisor: (1) The oral presentation can be given to the student’s committee only (ca. ~ 40 minutes long, providing an overview and synthesis of the dissertation chapters), followed by a discussion of the research involving questions for the student, and will conclude with the evaluation of the dissertation. The student is then required to give an additional, public seminar at the CBG following a successful defense (conditional or unqualified pass). (2) The second way is for the oral presentation and the public presentation to occur at the same time, immediately before the defense. If the committee judges the dissertation to be satisfactory it can be approved at this meeting, although final corrections, revisions, or editing are likely to be requested. The committee’s decision is recorded on the *PhD Examination Committee Report* form. Possible outcomes are: an unqualified pass, a conditional pass requiring no re-examination but revisions, a mandatory re-examination, or a failure to pass

the exam. The committee will set a deadline for making any required revisions and indicate the consequences for not meeting the deadlines.

Consequences could include but are not limited to academic probation or re-examination. If a student has not turned in the revised dissertation within a year after the final exam, the student may be required to re-defend the dissertation and incorporate discussion of all newly published research in the area of study.

PUBLIC PRESENTATION OF DISSERTATION

If the student has received an unqualified or conditional pass, the public seminar can be scheduled in consultation with the committee. This is a formal seminar presented to the PBC program members and invited guests. It is recommended that the public seminar be scheduled within one month of the defense. The seminar must be arranged through the PBC office. The program staff will assist in advertising the public presentation. It is strongly recommended that the arrangements be made at least 14 days prior to the presentation.

OTHER REQUIREMENTS

TEACHING RESPONSIBILITIES FOR PHD STUDENTS

Many students may pursue a career that involves both research and teaching. Experience as a teacher is therefore a valuable part of the PBC graduate program. Teaching assistantships (TA) allow students to gain further expertise in the subject material of the course and enhances the student's communication skills. The PBC program currently requires **at least two quarters** of serving as a Teaching Assistant for the PhD degree, although the requirement may vary with total graduate student enrollment. This means that a student might be required to teach for more than two quarters. Teaching assignments require that the student work with the course instructor to organize and conduct quizzes, grade assignments and exams, help with in-class discussion, and/or lead laboratory sections for one quarter. This is not a comprehensive list but examples of common TA duties. Specific courses will vary, but generally students will TA for one larger biology course and one PBC course.

SEMINARS

Program Invited Speaker Seminars

All students should attend the Invited Speaker Seminar on scheduled Friday mornings at 11:00 am at CBG throughout the academic year. PhD students are required to host a seminar speaker once a year in the second and third years. This involves inviting a speaker, coordinating his or her visit schedule, meals, and schedule the speaker's talk. The PBC program assistant can work with the speaker to assist with travel arrangements. (Contact PBC Program Assistant for information related to invited speakers). These are important networking opportunities in addition to good administrative skills to develop.

PhD Research Seminars

Starting in the second year, PhD students are required to present their research as part of the PBC seminar series. This is generally a 20 – 25 minute research presentation, with time for questions. Two or three PhD students will present at a seminar meeting.

Informal Seminar Programs

In addition to the formal seminar series, numerous informal seminar programs are offered throughout the University. These include special departmental seminars, symposia, laboratory group meetings, and journal club. Participation in such activities is considered an important part of graduate training and is encouraged.

PROFICIENCY

The PBC program requires that all students demonstrate a basic proficiency in plant biology and conservation. This requirement is satisfied in part by successful completion of all the required graduate course work with a B average or better. **Students are expected to read widely in the primary literature related to their area of research.**

INTERNATIONAL STUDENTS

International students who did not complete their undergraduate education in an English-speaking institution need to demonstrate English proficiency before becoming eligible for funding as a graduate or teaching assistant. For more information on TGS's language proficiency requirement, please visit [this website](#).

ORIENTATION AND REGISTRATION INFORMATION FOR FIRST- YEAR MS AND P_HD STUDENTS

First-year MS and PhD students are expected to attend the TGS new student orientation (at NU) and the PBC orientation (at CBG), both in mid-September, the week before classes start.

E-MAIL

Your e-mail address will have been set up for you before your arrival at Northwestern by The Graduate School. If you have not received this information by the beginning of August, please contact the PBC program assistant or you may contact the Northwestern University IT Help Desk (1-847-491-4357). You can also visit the NUIT Information Center, 1800 Sherman Avenue, Evanston Campus.

<https://www.it.northwestern.edu/index.html>

REGISTRATION

Registration for fall quarter takes place on the week before fall quarter classes begin. Registration and courses will be discussed during the PBC orientation. Students will register for PBC 450 and PBC 451 for the first quarter. Students also have the option of registering for an additional elective and may discuss elective options with the Program Director if they have questions.

Courses usually carry one unit of credit except for PBC 450 (2 units), independent research (PBC 590, 1- 3 units) and independent studies (PBC 499, 1-2 units). Full-time registration consists of at least three or up to four units per quarter.

ALL PhD STUDENTS MUST REGISTER ON TIME TO RECEIVE PROPER PAYMENT OF STIPENDS AND SCHOLARSHIPS.

Registration dates can be found in the [Academic Calendar](#) Registration

takes place online, using [CAESAR](#)

COURSEWORK

PBC AND OTHER NORTHWESTERN COURSES

All PBC students must take a combination of PBC required courses and elective classes. Courses are subject to change each quarter, and up-to-date information can be found in the NU class schedule prior to each quarter. Additional Northwestern classes may be appropriate as electives. Please see [TGS General Registration Policies](#).

Please refer to the website for [current course offerings](#). Students can tailor their electives to their specific interests and elective courses can be taken across departments. Graduate-level courses are 300- or 400-level courses that carry graduate credit. If you choose to take any elective courses that are not at the graduate level, you may do so with the permission of your advisor and Director of Graduate Studies. However, overall, **9 units must be taken at the graduate level, or you will not be able to graduate.**

COURSES AT OTHER UNIVERSITIES

In addition to Northwestern classes, PhD students can take classes at qualifying universities through the **CIC Traveling Scholar Program** (15 member universities, including the University of Chicago). MS students and PhD students can enroll in courses through the **Chicago Metropolitan Exchange Program** (University of Illinois at Chicago). For official policy, [please see section 4.12: “Taking Courses at Other Universities”](#)

ADDITIONAL INFORMATION

MS Students

Independent Study

MS students can register for PBC 499, an independent study with their advisor or another faculty member, and must complete the *Approval for Independent Study* form and receive a permission number from the PBC program assistant to register.

Enrollment in TGS 512

For the second year and beyond of the PBC MS program, students should register for TGS 512, Continuous Registration. The fee for TGS 512 is \$100 per quarter. No registration is required during the summer quarter.

PhD Students

Bioethics Course

Check [this website](#) for current courses that fulfill this requirement. Note that PBC does not currently have its own Bioethics course but is in the process of developing one.

Independent Research (PBC 590)

For the first eight quarters, students will register for PBC 590 to bring their total number of credits to 3 or 4 (e.g., if student is taking two courses, they can register for 1 unit of PBC 590 to bring the total number of credits to 3 for the quarter).

Enrollment in TGS 500

After they have completed the required courses and electives (including 8 quarters of PBC 590), PhD students should register for TGS 500.

ACADEMIC INTEGRITY

Both the University and the PBC graduate program take academic integrity very seriously. Cases of suspected academic dishonesty, including suspected plagiarism, will be referred directly to The Graduate School for follow-up and may result in expulsion from the PBC program. Among the most important goals of graduate education are maintaining an environment of academic integrity and instilling in students a lifelong commitment to the academic honesty that is fundamental to good scholarship. Standards of academic integrity are violated whenever a student engages in any action that jeopardizes the integrity of scholarly work. Such actions include, without limitation, cheating in the classroom or on examinations, including master's final examinations and PhD qualifying examinations; the intentional and deliberate misuse of data to draw conclusions that may not be warranted by the evidence; fabrication of data; omission or concealment of conflicting data for the purpose of misleading other scholars; use of another's words, ideas or creative productions without citation in either the text or in footnotes; paraphrasing or summarizing another's material in such a way as to misrepresent the author's intentions; use of your own work from another class and representing it as new and independent work (e.g., writing a paper for one class and using that same paper for another class; and use of privileged material or unpublished work without permission.

For more information about the TGS and University policies on academic integrity, please refer to: [TGS Policy](#) and [NU Policy](#).

FUNDING INFORMATION

MS PROGRAM

All research thesis track Master's degree students will be considered for tuition scholarships. Scholarships cover a portion of tuition costs during year one. The curriculum can be completed in one academic year. After completion of curriculum requirements, students will maintain matriculation, as they complete their research, by registering for TGS 512 (\$100/quarter), excluding during summer quarter. MS students may have the opportunity to serve as a proctor, grader, or TA for courses.

PHD PROGRAM

PhD students are guaranteed funding for at least five years if they remain in good academic standing and are making satisfactory academic progress. The first year of support is derived from a Northwestern University full tuition scholarship plus a stipend and full coverage of health insurance premiums for plans available through Northwestern University. In subsequent years, it is the policy of the PBC program to use research assistantships, teaching assistantships (see above), project assistantships, and fellowships to continue support.

Project assistantships (PAs) may consist of helping with research or administrative work. These projects will be assigned during the summer for the following academic year. Whenever possible, student interest will be considered when assigning PA projects. Please speak with the Program Director for more information.

TGS Policy Regarding Remunerative Work

1. Permission to Work: Information about permission to work [can be found here](#).

TRAVEL AND RESEARCH AWARDS

All PBC graduate students are encouraged to apply for research grants to cover expenses and travel awards to attend conferences.

DEPARTMENTAL AWARDS

The Northwestern Plant Biology and Conservation Research Award for [MS students](#) and [PhD students](#) funds student research. The award can be used for research expenses including equipment, supplies and/or travel. The application can be found on the PBC forms and documents page.

PBC also funds student travel to professional conferences and workshops. Funds can be used for travel to the conference location, conference registration, and accommodations. Students are allowed one travel award per year. Applications can be found on the PBC [forms and documents pages](#), and are **due two months before** the conference or workshop. PhD students also apply for a [Conference Travel Grant](#) through The Graduate School.

ADDITIONAL FUNDING OPPORTUNITIES

Additional opportunities to fund research or travel can be found on these sites: [PBC Grants page](#)

Northwestern Fellowships and Grants [Page](#)

ACADEMIC AND PROFESSIONAL RESOURCES

Career and Professional Development Programs

Searle Center for Advancing Learning and Teaching and The Graduate School Programs

PBC students have access to the Searle Center for Advancing Learning and Teaching and resources through The Graduate School.

The Searle Center is a valuable resource for students interested in improving their teaching skills in preparation for an academic career. Additional information about the Searle Center programs can be found on their website: <https://www.northwestern.edu/searle/initiatives/grad/index.html>

Professional Development for Graduate Students

Please consult The Graduate School website for the numerous professional development opportunities <https://www.tgs.northwestern.edu/services-support/professional-development/>

For some examples, PBC students have participated in these professional development programs:

- i. [ComSciCon](#) Chicago – A science communications workshop
- ii. [Dissertation Bootcamp](#) – A two-week intensive dissertation writing workshop
- iii. [Ready, Set, Go](#) – A summer workshop focusing on oral presentation skills for STEM graduate students
- iv. [Science Club](#) – An after-school science program for middle school students
- v. [Teaching Certificate Program and Graduate Teaching Fellowship](#) – Programs to improve teaching skills

Northwestern Career Advancement (formerly Northwestern Career Services)

Northwestern Career Advancement provides comprehensive career services to all life sciences graduate students and postdoctoral fellows considering non-academic as well as academic careers. Career counselors assist students and fellows with career decision making by helping them explore and re-classify interests, values, and skills through one-on-one counseling meetings and career assessments.

Life sciences trainees should also utilize the Career Resource Center and other online materials to research employers and careers of interest to them. Employment counselors work closely with students and fellows to help them develop individualized job search strategies and refine job search skills (resumes, CVs, interviewing). More detailed information can be found on the University Career Services [website](#).

Advice

Spencer Hall's [Resources for Graduate Students and Post-Docs](#) contains a wealth of information on being a successful graduate student, getting grants, getting a job, and many other concerns.

Libraries

Students have access to library resources at both Northwestern University and the Chicago Botanic Garden. Through these libraries, students can access books and articles from many relevant journals. If a student cannot gain access to a particular book or journal article from either NU or CBG's library, students can request it from Interlibrary Loan through the NU library.

[Northwestern University Library Chicago](#)

[Botanic Garden Library](#)

CBG Library contact: library@chicagobotanic.org

Student Lounge

A student lounge is available to PBC students on the 3rd floor F wing of Tech. These rooms provide computers, printers, lockers, and a small refrigerator and microwave. These are great spaces for quiet places between classes, an alternative location to working at home or in the CBG lab space if needed, and as a collaborative space for PBC students on campus. Both student lounges are accessed via wildcard key card access. To get access to this space, please email the [Program Assistant](#) the following information from your wildcard: Full name, EmplID, expiration date, and the serial number of the wildcard located at the back bottom part (e.g., 12345 +123456 AB). If you do not have your wild card the PBC director and program assistant will let you in.

There are also reservable office spaces on the 4th floor of the F wing of Tech: F412 and F413. To reserve these spaces, use this [Google Sheet](#).

STUDENT LIFE RESOURCES

NORTHWESTERN'S OFFICE OF COMMUNITY STANDARDS

The mission of the [Office of Community Standards](#) is to provide support and education to students involved in campus conduct matters, to facilitate the resolution of student conflicts, and to play a key role in educating and training students, faculty, and staff about community expectations, values and standards. In addition, the office is responsible for coordinating the Division of Student Affairs' student conduct system, maintaining student conduct records, and administering the formal student disciplinary processes: the University Hearing and Appeals System (UHAS).

NORTHWESTERN'S OFFICE OF COMMUNITY ENRICHMENT

At the Office of Community Enrichment (OCE), our core mission is to support Northwestern students, faculty and staff so they can flourish through deep engagement with one another and with ideas that inspire ongoing learning and growth. Our vision is a Northwestern community rooted in belonging, invigorated by difference and steadfast in its commitment to collective thriving.

The work we do in service to our community is inspired by the following core values: courage, integrity, curiosity, stewardship and abundance. This commitment is manifested through the initiatives, events and programs across our unit and sub-units. We invite you to join us in the collective effort of cultivating an enriched community.

Resources: [Office of Community Enrichment - Northwestern University](#)

NORTHWESTERN'S OFFICE OF CIVIL RIGHTS & TITLE IX COMPLIANCE

Northwestern is committed to fostering an environment in which all members of our community are safe, secure, and free from sexual misconduct, discrimination, and harassment. Northwestern encourages anyone in our community who has experienced, or who witnesses, sexual misconduct, discrimination, or harassment based on a protected category to report the incident to the Office of Civil Rights and Title IX Compliance (OCR) so that those impacted can be provided with information on available resources and options.

Resource: [Office of Civil Rights & Title IX Compliance - Northwestern University](#)

NON-DISCRIMINATION AND NON-HARASSMENT POLICIES AND PROCEDURES AT CHICAGO BOTANIC GARDEN

You can access the Chicago Botanic Garden's non-discrimination and non-harassment policies and procedures for reporting at this link: <https://www.chicagobotanic.org/policies> As some students in the program may also be Chicago Botanic Garden employees or volunteers, below is additional information relevant to these different roles.

Both Northwestern and the Chicago Botanic Garden expect that all students, faculty, and staff involved in the joint program for the training of graduate students in plant biology and conservation will treat each other with civility and mutual respect. Both entities are committed to cultivating an environment that values diverse backgrounds, approaches, and perspectives.

As stated in Northwestern's Policy on Discrimination and Harassment and Policy on Sexual Misconduct,

Northwestern does not tolerate discrimination or harassment (including sexual misconduct) on the basis of any protected class. As stated in the Chicago Botanic Garden's Non-Discrimination, Equal Employment Opportunity and Affirmative Action, Title IX, Anti-Harassment & Anti-Retaliation Policies & Anti-Harassment and Discrimination Complaint Procedures, the Chicago Botanic Garden also does not tolerate discrimination or harassment (including sexual harassment, sexual assault, or other forms of sexual violence) on the basis of any protected class.

If a Northwestern student, faculty, or staff member participating in the joint program feels they are being discriminated against or harassed on the basis of a protected class or retaliated against by any other participant in the program, Garden employee, or Garden volunteer, that person should immediately report that behavior to Northwestern's Office of Equity, or to the Director of the program, who will then report the concern to the Office of Equity.

If a Northwestern student, faculty, or staff member reports to the Office of Equity an allegation of discrimination, harassment, or retaliation involving a Chicago Botanic Garden employee or volunteer, the Office of Equity will immediately report the allegation to the Garden's Vice President of Human Resources/Title IX Coordinator.

If a Chicago Botanic Garden employee learns of an allegation of discrimination, harassment, or retaliation involving a Northwestern student, faculty, or staff, the Chicago Botanic Garden employee will immediately report the allegation to the Vice President of Human Resources/Title IX Coordinator at the Chicago Botanic Garden, who will immediately report the allegation to Northwestern's Office of Equity.

You can find additional resources about reporting obligations and investigation procedures can be found [here](#).

Based on the nature of the allegations and the wishes of the impacted individual, Northwestern will coordinate with the Chicago Botanic Garden to provide support and resources to the impacted individual, and, if appropriate, conduct a prompt, impartial, and thorough investigation into the allegations. Where Northwestern deems it appropriate to conduct an investigation, Northwestern and the Garden will have the option to collaborate on a joint investigation. The Garden also reserves the right to conduct a separate investigation in addition to any investigation conducted by Northwestern. Whether a joint investigation or separate investigations are conducted, Northwestern and the Chicago Botanic Garden will share information – including the nature of the allegations and the findings of any investigation – with each other to the extent permitted by law.

CONFLICT RESOLUTION

PBC is committed to assisting students with concerns, conflicts, complaints, or other issues. When conflicts occur between an advisor and student, if possible, they should first try to resolve the issue themselves. Here are [some resources](#) to assist with this process. If the conflict cannot be resolved, the student can seek advice or intervention from their thesis/dissertation committee members, the program director, or another member of the PBC community with whom they are comfortable speaking. If these approaches are unable to provide appropriate assistance, the program director can refer the student to a third NU party (or the student can reach out to a third NU party directly), including the [university ombudsperson](#), who will act as a delegate or intermediary in finding a solution.

CAMPUS LIFE

Please reference The Graduate School's Campus Life website for additional resources and information including student activities, health, housing, family resources, and dealing with conflict. <https://www.tgs.northwestern.edu/services-support/community-campus-life/>
Off Campus Life at Northwestern <https://www.northwestern.edu/offcampus/>

U-Pass

U-Pass is a special fare card to be used on all Chicago Transit Authority (CTA) transportation (the El system and Pace buses) for all full-time "resident" students in The Graduate School. The U-pass is covered by the TGS student activity fee (see below). Please note that the U-pass is provided for first year MS students and all PhD students. <https://www.tgs.northwestern.edu/campus-life/housing-transportation/u-pass.html>

TGS Activity Fee

The Graduate School has implemented a mandatory activity fee to support services for full-time.

HEALTH INSURANCE COVERAGE

General Information

The Graduate School (TGS) works with the Office of Risk Management and the Student Health Insurance Office to provide health insurance to TGS students.

All full-time students must have health insurance coverage throughout their academic studies at NU. New students must either 1) enroll in the NU Student Health Insurance Plan, or 2) waive coverage. Either option can be completed by submitting the online Coverage Selection Form in [CAESAR](#). It should also be noted that in CAESAR, there is a section entitled "Coverage Selection." Here the student can indicate if there is other coverage from parents, spouse, etc. If so, they must provide the exact policy number/group number information along with the name of the insurance carrier.

PhD students who are enrolled full time are eligible to receive a **full health insurance subsidy** if the student is enrolled in the Northwestern student health plan. (Excluding TGS 512)

Graduating or Departing Students

Students enrolled in the NU health plan who are graduating or leaving the University at the end of a term and wish to cancel their enrollment in the plan, must submit a request in writing to the Health Insurance Office (633 Emerson Street) by the last day of the quarter they are leaving the University. They may also email requests to student.insurance@northwestern.edu. **When a student graduates from the program, they will need to complete the Health Insurance cancellation form 6-8 weeks prior to graduation.**

Additional Health Insurance Resources

Health Insurance Office Phone:

847.491.3621 Email:

student.insurance@northwestern.edu

Please see the TGS Student Health Insurance Information page for information on enrolling in the Aetna plan for

TGS students: <https://www.tgs.northwestern.edu/campus-life/health-and-wellness/student-health-insurance/index.html>

Specific details about Northwestern's student health insurance including annual premium rates can be found here: <https://www.northwestern.edu/healthservice-evanston/insurance-patient-accounts/health-insurance/insurance-enrollment/fall-entry-full-time/index.html>

HOUSING RESOURCES

On campus graduate housing is available at Northwestern. <https://www.northwestern.edu/living/housing-options/graduate-housing/engelhart/index.html> <https://www.northwestern.edu/living/>
Wildcat Pad is an off-campus housing network for Northwestern students. (www.wildcatpad.com)
TGS Housing and Transportation. (<https://www.tgs.northwestern.edu/campus-life/housing-transportation/index.html>)

STUDENT LEAVE POLICY

Please refer to The Graduate School website for the latest information on student leave: <https://www.tgs.northwestern.edu/academic-policies-procedures/leaves-withdrawal-readmission.html>

DEPENDENT CARE GRANT

Northwestern will pay up to \$500 for dependent care (including day care while PhD students travel to a conference or do field work). For more details on this, please see <https://www.tgs.northwestern.edu/funding/fellowships-and-grants/internal-fellowships-grants/>

LEGAL SERVICES

The TGS activity fee also covers legal services to assist with issues such as landlord, credit or debt problems, and traffic violations <https://www.tgs.northwestern.edu/services-support/legal-services/>

STUDENT COUNSELING SERVICES

Free and confidential counseling services are available to all students from Counseling and Psychological Services (CAPS). Students are eligible for at least 12 sessions through CAPS. If you need CAPS services, call 847-491-2151. <https://www.northwestern.edu/counseling/>

In case of an emergency after hours, please call the Crisis Line at 847-491-2151.

ADDITIONAL INFORMATION AND POLICIES

ID CARD/WILDCARD

The Student ID/Wildcard gives students access to all University facilities (e.g., the libraries, the Sports and Aquatic Center, etc.) It also provides some discounts at merchants in Evanston and Chicago.

Upload your photo ahead of time for your Wildcard and U-Pass:

New students can either upload their picture to the Wildcard Office website (https://www.northwestern.edu/userservices/wildcard/get_a_card/photo-submission.html) or they can have their picture taken when they arrive on campus. **We encourage our new students to upload their picture, so the Wildcard is ready before they arrive on campus.**

During new student week, the McCormick School of Engineering distributes the Wildcards in the lobby of the Technological Institute located at 2145 Sheridan Road (intersection of Sheridan Road and Noyes Street).

While you are here as a student at Northwestern, if you lose your Wildcard, you can obtain a replacement card at the Wildcard Office. The office is open from 8:30 am to 5:00 pm, Monday through Friday. The Wildcard office phone number is 467-6843. The cost to replace your Wildcard is \$25.00.

PARKING PERMITS

Students that plan to park on campus will require a parking permit which can be obtained through the University Police parking office. The office is located at 1841 Sheridan Road – south campus entrance and is open from 8:00 am to 4:00 pm, Monday through Friday. Students need a Wildcard, their car's make/model and license plate number and driver's license to obtain a parking pass. Less expensive parking is also available at Ryan Field. Please check with the parking office for current fees. <https://www.northwestern.edu/up/parking/>

PAYROLL

Stipends are automatically deposited to the student bank account on the last day of each month once the student completes the necessary payroll paperwork during graduate student orientation. For questions about your monthly stipend, please contact the PBC program assistant.

TAXES

Here is a website for students that have questions about paying taxes: <http://www.tgs.northwestern.edu/funding/filing-taxes.html>

SOCIAL SECURITY CARDS FOR INTERNATIONAL STUDENTS

When an international PhD student is scheduled to be a teaching assistant for a course and will be paid by the University, the PBC program will write a verification letter to the Social Security Office located in Evanston. The letter will verify the following information for the student: Age, Identity, and Citizenship.

The student provides verification of their current address with a lease or utility bill.

International MS degree students are advised to contact the International Office to learn about their options for obtaining a social security number.

The PBC program is unable to provide Social Security verification letters for MS students in the program since they are not receiving stipend payments from Northwestern.

OTHER DEGREE PROGRAMS OR FOR-CREDIT COURSEWORK

Enrollment in any formal degree program (J.D., M.B.A., etc.) or participation in for-credit coursework outside of the PBC curriculum requires prior approval from the program director and student's advisor. Requests will be considered on an individual basis and are not automatically granted.

OUTSIDE EMPLOYMENT FOR PHD STUDENTS

<https://www.tgs.northwestern.edu/academic-policies-procedures/policies/student-funding-policies.html>

PBC STUDENT WEBSITE GUIDELINES

The PBC webpage hosts student research pages, and we'd love all students to have a page describing their research. It's a great way to get info out about your research and for making contacts. It's also nice to include on your CV for grant or job applications. For those of you who don't have one yet, please follow the instructions below and send the required materials to the PBC program assistant. What's Needed to Start A Webpage (Created by PBC Program Assistant)

- An image of either you or your field site/study organism (send as a jpeg, not embedded in a document).
- A brief list of your interests (i.e. Restoration Ecology and Reproductive Biology OR Systematics and Evolution, etc)
- A brief statement about your research. You could always use the abstract from your thesis proposal or a grant you've prepared.
- Optional - other pictures with captions, lists of awards, relevant links, etc.

Sample PBC Websites

<https://plantbiology.northwestern.edu/people/graduate-students/haley-carter.html>

<https://plantbiology.northwestern.edu/people/graduate-students/jacquelyn-fitzgerald.html>

PBC Student Government

Current information on student government [can be found here](#).

Graduate Student Union

- The first collective bargaining agreement (“CBA”) between Northwestern and the graduate student union (NUGW-UE Local 1122) was ratified on March 15, 2024.
- The CBA applies to certain graduate students currently enrolled in degree programs when they are providing instructional or research services for the University. Students should refer to the University’s [graduate student union website](#) for contract details.
- To the extent that terms in this handbook conflict with the terms set forth in the CBA between the University and NUGW-UE Local 1122, the terms of the CBA will govern.

CHICAGO BOTANIC GARDEN

Student workstations are available in the **Plant Conservation Science Center** at CBG. This is also where the labs are housed, and many PBC professors and staff have their offices.

CBG ID CARD

New students will receive CBG ID cards during orientation. At other times, cards can be obtained at the security office. The ID will allow students through the security gates at the North and South ends of CBG, and into the labs and offices of the plant science center.

The ID card entitles students to discounts at the CBG café and The Garden Shop, and free or discounted entry to many garden sections and events (e.g., The Model Railroad Garden, the tram, and the seasonal Butterflies and Blooms exhibit). In addition, the CBG ID offers complimentary admission for cardholders and 1-2 guests to many of the museums and zoos in the Chicago area, including: Adler Planetarium, Art Institute, Chicago Children's Museum, Brookfield Zoo, Chicago History Museum, DuSable Museum, Field Museum of Natural History, Lincoln Park Zoo, Museum of Contemporary Art, Museum of Science and Industry, Peggy Notebaert Nature Museum, and the Shedd Aquarium (as of 2015).

TRANSPORTATION

Getting to the Chicago Botanic Garden <http://www.chicagobotanic.org/visit/directions>

The **Pace Bus 213** travels between Evanston and CBG. See <http://www.pacebus.com/> for the schedule.

The **Metra commuter rail, Union Pacific North Line** train reaches the Braeside station, approximately one mile from CBG's entrance, and the Glencoe station, approximately 2 miles from the entrance.

The **Milwaukee North Line** train services the Lake Cook Metra station.

Students can also bike between Evanston and CBG, along the North Branch Trail.

Parking – There is limited parking behind the Science Center. Priority for spots is given to volunteers and staff. Students should park in the lots/spaces south of the Science Center.

PBC COMMITTEES AND STAFF

The administrative staff of PBC is a valuable resource for information on stipends, registration, teaching and departmental activities. A full list of PBC staff and faculty can be found on the program website. Faculty and staff are located at either NU (Hogan Hall, 2205 Tech Drive) or CBG.

PBC STAFF

Nyree Zerega	Director	847-467-1266	n-zerega@northwestern.edu
Grace Price	Program Assistant	847-467-2799	grace.price@northwestern.edu

CURRICULUM COMMITTEE

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GRADUATE ADMISSIONS

MS Program

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PhD Program

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Paul CaraDonna	847-835-6935	pcaradonna@chicagobotanic.org

PROFESSIONAL DEVELOPMENT COMMITTEE

Jeremie Fant	847-835-6959	jfant@chicagobotanic.org
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MASTER'S INTERNSHIP COMMITTEE

Andrea Kramer	847-835-6971	akramer@chicagobotanic.org
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RECRUITMENT, RETENTION, AND DIVERSITY

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Plant Biology & Conservation Theses

Digital Archiving and Public Access to Northwestern Research

Northwestern University Libraries offers an option for students to publish their master's thesis online and have them digitally archived. Arch is Northwestern's open access research and data repository.

Benefits for publishing and archiving your thesis:

- Your work will be indexed by search engines and discoverable by researchers around the world, extending your work's impact beyond Northwestern
- Your work will be assigned a Digital Object Identifier (DOI) to ensure perpetual online access and to facilitate scholarly citation
- Your work will help accelerate discovery and increase knowledge in your subject domain by adding to the global corpus of public scholarly information

Get started:

- Visit Arch: <http://arch.library.northwestern.edu/>
- Log in with your NetID > "Deposit Work"
- Describe your thesis: title, author, date, keywords, rights, license, subject, etc.
- Add to Plant Biology and Conservation collection. "Relationships" > "Plant Biology and Conservation Theses" > "Add"
- Upload your thesis PDF and any related supplemental files (data, analysis code, figures, images, presentations, documentation, etc.)
- Select a visibility: Public, Northwestern-only, Embargo (i.e. delayed release)
- Save your work to the repository

Frequently Asked Questions:

Do I have to transfer my copyright to Northwestern University?

No. You retain copyright to your thesis and any supplemental files you publish with Arch. We require a non-exclusive license that grants Northwestern permission to store, provide access, and preserve the files you upload to the repository. You can read the deposit agreement in its entirety here: <http://arch.library.northwestern.edu/agreement>

What is an embargo?

An embargo is an option for you to deposit your work immediately, but to set a delay on the public release of your work. Some researchers select this option when they are in the process of publishing their work in a peer-reviewed journal or book, or if they are applying for a patent. A typical embargo period is two years.

Will this limit my options for publishing in peer-reviewed journals or books?

It depends on the policies of the publisher. Some publishers prohibit submissions of work that is already publicly available online, while others do not. If you plan to publish your thesis work in a peer-reviewed publication you can either use the embargo option to delay the release of your thesis files, or you can opt-out entirely.

For questions or support in publishing your thesis, please contact digitalscholarship@northwestern.edu.

