

Handbook and Academic Guidelines for M.S. and Ph.D. Students, Department of Plant Biology, Ecology, and Evolution, Oklahoma State University

Table of Contents

Academic Guidelines for All Graduate Students in PBEE	2
M.S. Plant Biology Course Requirements and Planning Guide	8-9
M.S. Plant Biology Progress & Timeline	10
Ph.D. Plant Science Course Requirements (in Plant Science Program Handbook*)	---
Ph.D. Plant Science Progress & Timeline for PBEE students	11
Leave of Absence Policy	12
Research Proposal Approval Form	13
Ph.D. Qualifying Exam Report Form	14
Annual Progress, Appraisal and Development Review	15-16

*Ph.D. Plant Science Program Handbook is a separate (non-PBEE) document that can be found at http://plantbio.okstate.edu/graduate_programs/programs.html

M.S. Plant Biology Coordinator – Dr. Ming Yang

Ph.D. Plant Science Coordinator – Dr. Bill Henley

REQUIRED FORMS:

Graduate College forms can be found at <http://gradcollege.okstate.edu>. The graduate student is responsible for checking the Grad College website for forms, submitting these on time, and providing a copy to the PBEE Unit Assistant and Graduate Coordinator of his or her program (M.S or Ph.D.). PBEE forms* are at the end of this document (pages 12-15).

- GSSI Tuition Waiver Form [online-only; print for file]
- Annual Progress, Appraisal and Development Form*
- Plan of Study [online-only; print approved copy for file]
- Research Proposal Approval Form* [signed, dated with dated proposal attached for file]
- Admission to Doctoral Candidacy. For M.S., the Proposal Rubric to be filled out by committee members for program assessment, and returned to PBEE Assessment Coordinator.
- Reduced Enrollment Opt-In Form [doctoral candidates only]
- Qualifying Exam Reports* (Ph.D. only); use Grad College and PBEE forms to report results. Rubric A for program assessment to be filled out by committee members and returned to PhD coordinator.
- Thesis/Dissertation Oral Defense Results. For M.S., the Thesis Rubric and Public Defense Rubric to be filled out by committee members for program assessment, and returned to PBEE Assessment Coordinator. For Ph.D., Rubric B to be filled out by committee members for program assessment, and returned to Ph.D. coordinator.
- Online Diploma Application
- Graduation Clearance

- Final Semester Verification (if taking less than 6 hours)

Academic Guidelines for M.S. and Ph.D. Students in the Department of Plant Biology, Ecology, & Evolution, Oklahoma State University

These guidelines include all graduate students in PBEE enrolled in any of the following degree programs: Botany M.S., Interdisciplinary Science M.S., Environmental Science M.S./Ph.D., or Plant Science Ph.D. Of these, only the Plant Biology M.S. is directly administered by the PBEE Department. All others are interdepartmental degrees directly under the Graduate College, with their own guidelines. Thus, Ph.D. students must follow the guidelines of all three entities – the Graduate College, the Plant Science degree program, and the PBEE Department.

Preamble: The Context, Value and Expectations of Graduate Degrees

Graduate degrees in the life sciences are primarily research degrees, enabling recipients to conduct independent scientific inquiry as self-motivated professionals. Such individuals contribute greatly to the advancement of society, through generation of new knowledge relevant to economic development and environmental protection. Federal and state governments and various types of non-governmental entities therefore financially support scientific research, including training of graduate students, through competitive grants, contracts and fellowships. In return, it is generally expected that research results will be published in peer-reviewed journals.

Many holders of graduate degrees also will have the opportunity or expectation to educate others at some point in their careers. Thus, graduate training also typically includes experience as a Graduate Teaching Assistant (TA). Some may hold a Graduate Research Assistant (RA), typically for a portion of their degree program. RA funds come predominantly from grants obtained by faculty. Both RA and TA appointments are half-time (50%), requiring approximately (on average) 20 hours per week devoted to the work assignment. TA and RA stipends are compensation for service while completing coursework and research. Students may apply for and receive a competitive graduate fellowship that provides a higher stipend and allows them to devote 100% effort to their graduate program. These are available through federal agencies (NSF, EPA, etc.) as well as the OSU Graduate College. Regardless of source of financial support, all graduate students should keep in mind that the primary goal is to complete high quality thesis/dissertation research, along with coursework in support of that goal.

Given this context, graduate training in M.S. and Ph.D. programs through the PBEE Department is primarily aimed at self-directed/motivated intellectual development and publishing research results, in addition to job skills acquisition *per se*. Students ideally should aim to complete the M.S. degree in 2-3 years (≥ 30 graduate credit hours) and the Ph.D. degree in 4-5 years (≥ 60 graduate credit hours). This normally requires greater than full-time (40+ hours per week), year-round effort and commitment, regardless of the schedule of classes and financial support. Thus, any part of the work week not spent in one's own course work or teaching assignments should be devoted to research, including lab, field and/or library work. Additionally, to finish on time, it will require that students also work many weekends and evenings on research. A student's progress will be formally evaluated by his/her advisor annually and will be based on time devoted to research and tangible research results. Unsatisfactory annual evaluations must be forwarded to the OSU Graduate College.

Sources of Information on Graduate School Procedures

All PBEE graduate students should familiarize themselves with regulations found in the Graduate College Catalog, the Department of PBEE Academic Guidelines (this document), and those of the Plant Science Ph.D. and other programs where appropriate.

Candidate Screening

Prospective M.S. students must apply online through the OSU Graduate College website. A prospective M.S. student's credentials will be reviewed by all graduate faculty in the PBEE Department, and admission must be approved by at least three PBEE graduate faculty, and at least one of these must agree to serve as the student's graduate advisor.

Prospective Ph. D. students must apply online through the OSU Graduate College website. A prospective Ph.D. student's credentials will be presented to the entire PBEE faculty and admission must be approved by a majority of the graduate faculty. At least one of these must agree to serve as the student's graduate advisor. The Ph.D. Plant Science Program also must approve admission. Departmental standards for admission may exceed program standards, and in such cases the more rigorous standard will apply.

Advisory Committee

An admitted student's advisory committee shall be appointed no later than the end of the second (preferably the first) semester of enrollment. Students, in consultation with their advisors, must select at least two (M.S.) or three (Ph.D.) additional members of the Graduate Faculty to form an advisory committee. Ph.D. committees must have at least one member from outside of the Department of PBEE and at least two members from the Department of PBEE. If a non-OSU faculty member is desired, specific Graduate College rules apply. The advisory committee will help the student develop (and approve changes to) a Plan of Study (a Graduate College online form specifying *mandatory* coursework), approve the research proposal (submit PBEE form reporting approval), provide research guidance as needed throughout program, , administer the qualifying examinations (Ph.D. only; advisor will submit the PBEE form reporting results), and approve the final draft of the thesis/dissertation. Changes in the Plan of Study and committee composition (when a member can no longer serve) are allowed but the former requires approval by the advisory committee and the latter approval by Department Head and Dean of Graduate College. Changes in advisors require a revised Plan of Study and a new Research Proposal and Research Proposal Seminar, and may require new qualifying exams if already taken which will be at the advisory committee's discretion.

The major advisor has a special mentoring relationship with the student, and is the principal person responsible for guiding the student's professional development. The advisor is also expected to solicit grant support for research supplies, travel, and (summer) RA stipends for her/his students, and to encourage students to seek their own extramural support. However, financial support is neither an entitlement nor guaranteed. Students are reasonably expected to produce publishable research results by the time of graduation. Major advisors must provide an annual, confidential written critical evaluation of progress to each student, including goals for the next year and suggestions for improvement, followed by a private discussion. A copy of the evaluation signed by the advisor and student must be provided to the PBEE Graduate Coordinator and Unit Assistant to be placed on file in the Departmental Office. This process

takes place early during the spring semester and is based on the calendar year. Progress toward the degree is considered when TA appointments are renewed for the following academic year.

Credit Requirements

M.S. students must complete at least 30 graduate credit hours (as indicated in the Graduate Catalog). At least 21 of those credit hours must be in courses numbered 5000 and above, and exactly 6 must be in BOT 5000. Ph.D. students are required to complete a minimum of 60 graduate credit hours for graduation. M.S. Plans of Study are due to the Graduate College no later than the completion of the second semester; Ph.D. Plans are due no later than the end of the third semester (excluding summer term).

Most students will be on half-time (0.5-FTE) TA or RA support, and must enroll in *at least* 6/6/2 credit hours each fall/spring/summer (typically research hours – BOT 5000 or 6000 – in summer). Ph.D. candidates (those with a fully approved research proposal who have submitted the ‘Admission to Doctoral Candidacy’ Form to the Graduate College) may enroll in a minimum of 2 credit hours to maintain full-time status, but only after submitting to the Graduate College the ‘Opt In Form for Reduced Enrollment’. Students not supported on a TA or RA must enroll in 9/9/2 credit hours each fall/spring/summer to retain full-time status and a minimum of 2 credit hours each semester for part-time status; the latter may affect financial aid and student loan deferral.

OSU waives in- and out-of-state tuition for students holding a TA or RA; however the waiver does not cover fees. GSSI Tuition waiver forms must be submitted online each semester by the first day of class. The tuition waiver program waives all in- and out-of-state tuition on the Plan of Study up to the number of credit hours required for the degree (30 credit hours for the M.S., 60 for a Ph.D. student). Consult the Graduate College catalog and website for more detailed rules including the requirement to maintain continuous enrollment. Enrolling in courses not on the Plan of Study requires written advisor permission, and will result in tuition that is not waived by the OSU Graduate College.

All M.S. and Ph.D. students in the PBEE Department are expected to enroll in the course *Professional Development in Botany* (BOT 5110) during their first year (or the first time it is offered after admission).

Teaching Requirement

A minimum of one semester teaching experience is required of all M.S. and Ph.D. candidates. This requirement may be satisfied by enrollment in a college teaching practicum course (GRAD 5990) or by one semester experience as a TA. Equivalent prior teaching experience may suffice, if approved by the advisory committee.

Seminar Requirement

All M.S. and Ph.D. students must enroll in a minimum of 2 semesters of Seminar (BOT 5850, 1 credit hour) and give a public presentation during those semesters. Students are required to present one seminar on their thesis/dissertation research proposal and one finishing seminar on their results and conclusions, early and late in the student's degree program, respectively. Ph.D. students are required to present a public seminar as part of their defense, which is then followed by an oral defense with the committee; M.S. students are encouraged to do so at the discretion of the advisor. All graduate students are required to attend all PBEE seminars whether enrolled or

not and regardless of the topic or venue, and are expected to be active participants by asking questions of the presenters and meeting with them as organized by the faculty host and the Department. These are professional activities and participation is expected.

Research Proposal Requirement

A proposal must be written and presented to the advisory committee for approval within the first year of residence for M.S. students or the first two years for Ph.D. students. The proposal should be 10-20 pages in length, outlining objectives and methods of anticipated research and how the findings will be disseminated. This should be submitted to the advisory committee for consideration and approval, and discussed in a committee meeting. The following information should also be included unless otherwise specified by the advisory committee:

1. Statement of the research questions or hypotheses to be tested.
2. Review of relevant literature
3. Research design, including analysis of any preliminary data
4. Facilities needed
5. Budget
6. Time schedule
7. Background and preparation of student

A copy of your fully approved proposal and a signed approval form must be provided to the departmental secretary for your file. Ph.D. students must also file the Admission to Doctoral Candidacy with the Graduate College upon approval of the proposal.

Qualifying Examinations

After a Ph.D. student has completed most of the required course work he/she shall request that qualifying examinations be developed by the advisory committee to cover major areas of the student's research proposal, Plan of Study and related areas. Exams shall be both written and oral, with the latter following the former. If one or more components of the qualifying exams are failed or unsatisfactory, the advisory committee shall specify in writing the conditions for retaking the exam(s). An exam may not be retaken within four months of failure. A second failure of the exam terminates the student from the Ph.D. program. A signed and dated Qualifying Exam Report must be completed that indicates the outcome of the exams; if either the written or oral portions were deemed unsatisfactory, requirements to retake the exam(s) must be indicated. The signed Qualifying Exam Report must be provided to the departmental secretary.

Special Skills

The student's advisory committee may also require proficiency in a foreign language, statistics, computer science, mathematics, or other areas. Proficiency may be demonstrated by appropriate course work.

Thesis or Dissertation

Students must write a thesis (M.S.) or dissertation (Ph.D.) based on their original research. After completion and approval by the major advisor, a provisional draft shall be submitted to each advisory committee member for their criticism before the final draft. The

provisional draft shall be presented to each committee member at least six weeks prior to the date the thesis is due in the office of the Graduate College. The final draft shall be available to committee members at least two weeks prior to the date of the final oral examination, which shall be administered by the entire advisory committee and will ordinarily be a defense of the thesis/dissertation.

Consult the Graduate College's *Thesis Manual* regarding the formatting of the thesis/dissertation and enroll in the required online course. At the discretion of the advisory committee, the body of the thesis/dissertation may be in one of two formats:

1. A traditional comprehensive document with one or more chapters corresponding to different aspects of the research, or
2. One or more separate stand-alone manuscripts formatted for submission to specific peerreviewed journals.

Given the importance of peer-reviewed publication, the latter format is increasingly specified by advisory committees, but this is at the discretion of the advisor and committee. The Graduate College provides workshops and guidance on thesis and dissertation format and submission on their website.

A non-thesis option of the M.S. is available at the discretion of the student's advisor. A non-thesis degree is considered a terminal degree and is not recommended for students who wish to pursue additional professional degrees including the Ph.D. or wish to pursue a career in science. The transcript and diploma state non-thesis M.S. The non-thesis M.S. requires approval by the student's advisory committee, and is a 36 credit hour degree that requires a written report specified and approved by the committee.

Switching to the Ph.D. Plant Science program

A student enrolled in the M.S. Plant Biology program can apply directly to the Ph.D. Plant Science program without completing the M.S. if their advisor and advisory committee support this change based on research progress and accomplishments made thus far. Students considering this option must first discuss this with their advisor and committee, and are encouraged to discuss it with the Ph.D. coordinator and the department head. This requires (i) a new application to the Graduate College and an application to the Plant Science Ph.D. program, (ii) a new personal statement that details research progress and accomplishments made, and explains the reasons for wanting to directly seek a doctoral degree and thereby bypass the M.S., and (iii) letters of recommendation from all M.S. Committee members. The student's credentials will be presented to the entire PBEE faculty and admission must be approved by a majority of the PBEE graduate faculty. The Ph.D. Plant Science Program also must approve admission; departmental standards for admission may exceed the program standards, and in such cases the more rigorous standard will apply.

An application should typically be submitted no earlier than the third semester in the M.S. program, and by the end of February for full consideration with TA support for the following academic year. Thus a student would typically submit his or her application no later than February of their fourth semester for admission into the program in the fifth semester. Because the clock does not reset to the first semester, bypassing the M.S. will require immediate formation of a Ph.D. committee and a revised Plan of Study, and approval of a Research proposal

and presentation of the Research seminar no later than the sixth semester since this would be the third year in the PBEE graduate program at OSU. A student who bypasses the M.S. may receive a maximum of six years of TA support.

Publications, Funding and Conferences

It is generally expected that all students will have at least one (M.S.) or two (Ph.D.) manuscript(s) submitted, and ideally accepted, for publication in peer-reviewed journals prior to graduation. In practice, this would mean prior to the final oral defense of the thesis/dissertation. Similarly, students are strongly encouraged to solicit extramural (outside OSU) funding for their research and professional development. This may include awards for travel to conferences from professional societies, and grants and fellowships from relevant organizations, foundations and/or government agencies. Peer-reviewed publications and extramural funding are highly regarded by prospective employers, both in- and outside-of-academia. Finally, it is expected that all students will attend at least one national scientific conference at least every two years, and will present their research results at a national conference at least once prior to graduation. Financial support is often available from your advisor, professional societies, or the department – just ask/apply! Annual attendance and presentations at local and regional conferences is also highly advisable.

Course Requirements for the M.S. (with Thesis) in PBEE

Approved by the PBEE Graduate Faculty

Graduate College Requirements

- A. Enroll in at least 6/6/2 credit hours for fall/spring/summer to hold a GTA or GRA.
- B. Complete a minimum of 30 credit hours approved for graduate credit. A minimum of 21 hours must be at the 5000-level or above and must include exactly 6 hours in thesis credit (BOT 5000). Thus a maximum of 9 credit hours of courses numbered 3000* or 4000* may be counted toward the M.S.
- C. Maintain a 3.0 GPA.

PBEE Department Requirements

- A. Demonstrate proficiency in two core areas in Plant Biology by completing, to the satisfaction of your committee, two courses in each of the two areas listed below. These requirements may be fulfilled prior to entering the M.S. program. Your Committee will determine which courses taken at previous institutions may be counted toward these requirements.
 1. Plant Ecology and Evolution (e.g., *Plant Diversity and Morphology*, *Plant Taxonomy*, *Field Botany*, *Ecology*, *Evolution*).
 2. Plant Cell and Molecular Biology (e.g., *Plant Anatomy*, *Cell Biology*, *Molecular Biology*, *Biochemistry*, *Genetics*, *Plant Physiology*).
- B. Complete BOT 5110, *Professional Development*, during the first full year of enrollment, typically taught each fall. Credit hrs: 1.
- C. Present two seminars to the PBEE Department: one based on your research proposal and one on thesis research. Enroll in BOT 5850, during term of presentation. Credit hrs: 2.
- D. Take at least 3 graduate courses to total at least 9 credit hours at the 5000-level or above. Graduate courses taken to fulfill the proficiency requirement noted above (A) and/or taken prior to entering the M.S. program may be counted. Your Committee will determine additional coursework required, depending on your background and personal goals.
- E. Any remaining credit hours toward the M.S. must be taken in courses approved for graduate credit (e.g., 3000*, 4000*, 5000, 6000), as long as at least 21 credit hours are at or above the 5000-level. Maximum credit hours currently allowed to count toward the M.S. in BOT 5000, 5110, and 5210 are 6, 24, and 12, respectively.
- F. Refer to “Progress Toward Degree” section to track progress.
- G. If you plan to take courses not required by your Committee, you must obtain written permission from your advisor and have that memo placed in your file in the PBEE office. This tuition is ineligible for a waiver.

PBEE M.S. Plan of Study Checklist

Name of Student: _____

B.S./B.A. from: _____ Major: _____

Date entered OSU M.S. Program: _____

_____ Conditions, if

any: _____

Advisor: _____

COURSE REQUIREMENTS (indicate course, OSU or otherwise, date taken or to be taken)

BOT 5110 Professional Development OSU _____

BOT 5850 Seminar OSU _____

Core Area Requirements (may be fulfilled at the undergraduate or graduate level)

a) Ecology and Evolution (2 courses; may be taken prior to entering M.S. program)

b) Cell and Molecular Biology (2 courses; may be taken prior to entering M.S. program)

Additional Courses required by Committee*

* PBEE requires at least 3 graduate courses ideally of 3 credit hours or more; graduate Core Area courses should be used to count toward these 3. Your committee may require additional courses depending on your background and professional goals. An M.S. is 30 credit hours minimum with at least 21 credit hours taken at the 5000-level and above of which 6 (but no more than 6) must be thesis hours (BOT 5000).

Progress Toward the M.S. Degree

Normal progress toward the M.S. degree includes the steps in the following checklist. Ideally, the M.S. should result in submission of at least one manuscript to a peer-reviewed journal and at least one presentation (poster or oral) at a national conference. Support as a TA or RA is typically available for 2 calendar years with satisfactory progress. Support may be available for a 3rd year if warranted. More than 3 years of financial support requires special justification. For additional Graduate College enrollment requirements, refer to the OSU Catalog and the OSU Graduate College website.

Completed	Semester	Required Action Initiated by Student
	1	Select Major Advisor.
	1	Select Advisory Committee.
	1-2	Schedule first meeting with Committee.
	1-2	Develop and submit Plan of Study to Graduate College.
	2	Write Research Proposal (10-20 pages) and submit it to advisory committee for consideration and approval.
	2	Present seminar on Research Proposal.
	3-4	Complete courses approved by Committee.
	3-4	Complete bulk of research.
	4-5	Write thesis in accordance with Graduate College guidelines. <u>Do not postpone</u> writing to the 11 th hour.
	4-5	Set thesis defense date, paying attention to Graduate College deadlines. A provisional draft should be given to the Committee 6 weeks before the Graduate College deadline. A final draft should be completed 2 weeks in advance of the defense.
	4-5	Present seminar on thesis research. This may precede the oral defense if arranged in advance with your Committee.
	4-5	Make an oral or a poster presentation at a national or an international conference.
	4-5	Submit manuscript to a peer-reviewed journal. This action is expected and encouraged, but not required, for graduation. Follow Graduate College guidelines for thesis deposition. Provide an electronic copy to the PBEE Administrative Assistant. Have exit interview with the Department Head or Graduate Coordinator. Return keys; complete separation paperwork with Advisor, PBEE Administrative Assistants, and Department Head.

Refer to (<http://gradcollege.okstate.edu>) for Graduate College deadlines, forms, and information.

Progress Toward Ph.D. Degree

Normal progress toward the Ph.D. degree includes the steps in the following checklist. Support as a GTA or GRA is typically available for 5 calendar years for students with an M.S. and for 5-6 years for students without an M.S.* Support may be available for an additional year if warranted. More than 6 years of financial support requires special justification. While critical times to have a committee meeting are listed below, **you are expected to arrange one on an annual basis to discuss progress and goals.** Refer to (<http://gradcollege.okstate.edu>) for Graduate College deadlines, forms, and information.

Completed	Semester	Required Action Initiated by Student
	1	Select Major Advisor and Advisory Committee.
	1-3	Meet with Committee and develop Plan of Study to fulfill course requirements. Submit approved Plan of Study to Graduate College.
	3	Submit, defend, and obtain committee approval for Research Proposal (~10-20 pages). Provide to the PBEE Administrative Assistant a copy your approved proposal and final approval form signed by the Committee and the Admission to Doctoral Candidacy form. Should you wish to enroll in reduced credit while holding a TA or RA, submit the Form for Reduced Credit Enrollment to the Graduate College.
	4	Present seminar to PBEE Department based on Research Proposal. Schedule this with seminar coordinator during the semester prior to it. If you presented an M.S. seminar and then switched to the Ph.D. program, you must present a second seminar based on your Ph.D. Research Proposal. This seminar may precede full proposal approval from Committee.
	4	Complete required coursework and take Qualifying Exams.
	6	Complete bulk of data collection and analyses. Meet with Committee to discuss dissertation and expected manuscripts. Discuss submitting manuscripts as they come to completion rather than at the end of your program.
	7-9	Format dissertation following Graduate College guidelines; attend required Grad College workshop before the semester you plan to graduate. A word to the wise: Do not postpone writing to the 11th hour.
	7-9	Present finishing seminar on dissertation research. If this seminar also serves as your defense seminar (described below), this must be approved in advance by your advisory committee, be presented no more than two weeks prior to your defense, and publicized as such. This seminar must be publicized two weeks in advance by posting flyers in the Department and having the Departmental secretary send an email to all members of the PBEE Department and all participating Ph.D. Plant Science departments.
	7-9	Set Dissertation Defense Date, paying attention to Graduate College deadlines. A provisional draft already reviewed by your major advisor must be given to the Committee at least 6 weeks before the Graduate College deadline, and a defensible draft must be provided to the Committee at least 2 weeks in advance of the defense. The Graduate College requires that you make an oral presentation that is open to the public at your defense. The seminar described above <u>may</u> serve as this seminar, but otherwise it should be presented on the day of your defense. This seminar must be publicized 2 weeks in advance as described in previous paragraph.
	10	Follow Graduate College guidelines for dissertation submission. An electronic copy must be provided to the PBEE Administrative Assistant.
	10	Arrange an exit interview with the Department Head or Graduate Coordinator. Return keys and complete separation agreement with major advisor and departmental secretary.

Leave of Absence

The Graduate College has strict continuous enrollment and Leave of Absence policies. Should you require a leave of absence for medical or personal reasons, this requires approval by the PBEE Department and Graduate College. The Department is also required to have a Reinstatement Policy.

The PBEE Department reinstatement policy applies to Plant Biology M.S. and Plant Science Ph.D. students with their home department in PBEE. To be reinstated from a formal Leave of Absence, previously approved by PBEE and the Graduate College, they must provide to their advisor(s) and advisory committee(s) a brief synopsis of their research progress that may include courses taken, research proposal status, qualifying exams (if applicable), and research plan with a list of all tasks completed thus far indicating date and degree of completion (i.e., 100%, 50%, etc.). They also must work with their advisor(s) to develop a detailed list of tasks to be completed upon their return to the program that includes a detailed timeframe to successfully complete all degree requirements. The timeframe should encompass the semester they plan to return to the graduate program through the date they plan to submit their final thesis/dissertation to the Graduate College. The tasks to be completed should include all activities for the research project and may include data collection, data analyses, and stages of writing (first draft, second draft, final version, etc.). The advisor(s) may also require the student to include tasks such as depositing data in a public database or annotating specimens, etc. After the student and advisor have agreed to a provisional timeframe and list of activities to be accomplished, the student must set up a committee meeting to discuss his/her plan; these documents must be approved, signed, and dated by the student and all committee members and a copy provided to the PBEE Graduate Coordinator and the original provided to the PBEE Unit Assistant to be filed. The synopsis and detailed timeline informs the committee of what the student needs to accomplish in the timeframe proposed, and should assist the student in making timely progress after a Leave of Absence.

Research Proposal Approval Form

Attach signed form to approved proposal and provide copy to PBEE administrative assistant.

Name: _____

Program: _____ M.S. _____ Ph.D. Plant Science _____ other (list) _____

Title of Research Proposal:

Date of Submission to Committee _____

Date of Final Approval: _____

Signatures:

Advisor: _____

Committee Member: _____

Committee Member: _____

Committee Member: _____

Outside Committee Member (if Ph.D.): _____

Ph.D. Qualifying Exam Report

Provide original, signed copy to PBEE Administrative Assistant.

Written portion. Committee members print name and sign, indicating whether student passed or not.

	Printed name	Signature/Date	Pass Yes or No*
Advisor		_____	
Committee Member	_____	_____	
Committee Member	_____	_____	
Committee Member	_____	_____	
Outside Committee Member	_____	_____	

*Advisor will provide and attach written statement on what student needs to do to advance to the Oral portion of the exams. This will be signed and dated by advisor and student.

Oral portion.

Advisor		_____
Committee Member	_____	_____
Committee Member	_____	_____
Committee Member	_____	_____
Outside Committee Member	_____	_____

**PBEE GRADUATE STUDENT ANNUAL PROGRESS AND DEVELOPMENT REPORT
DUE TO YOUR ADVISOR, JANUARY 31 (STUDENTS WILL BE PROVIDED AN
ELECTRONIC COPY IN EARLY JANUARY)**

Name:

Period under review: January _____ to December _____

Graduate advisor:

Program:

I am requesting a TA for the following academic year for (check one):

Fall only

Spring only

Both semesters

Year and Semester entered program:

Courses completed toward degree:

<i>Year</i>	<i>Course</i>	<i>Grade</i>
-------------	---------------	--------------

Date Advisory Committee selected, members of Advisory Committee:

Date plan of study (POS) submitted:

Date research proposal submitted to Advisory Committee:

Date research proposal approved by Advisory Committee:

Date PBEE Department seminar(s) given:

Date comprehensive exams taken (Ph.D. only):

Funded or submitted research proposals:

Published or submitted manuscripts:

Manuscripts in preparation:

Presentations:

Teaching:

Service:

Title of Project chosen for research, and progress in this area:

Reflections on last academic year:

Goals for remaining graduate career:

Coursework:

Research:

Products (posters, presentations, publications):

Teaching:

Service:

Other:

All students must attach:

- *evaluation statement from faculty advisor who supervised TA performance*
- *current Curriculum Vitae*
- *current transcript*

Signed copies of approved documents must be submitted by all students to the Unit Assistant as they are completed and attached to this Annual Review.

- *Graduate College Plan of Study*
- *PBEE Research Proposal and Approval Form*
- *PBEE PhD Qualifying Exam Report*
- *Graduate College Advance to Candidacy Application (PhD only)*
- *Graduate College Reduced Enrollment form (PhD only)*

MS Proposal Rubric (Each graduate advisory committee member completes after the thesis proposal meeting/defense)

Level of Achievement (2 and 4 are intermediate scores)

Assessment Criterion	1 (poor)	2	3 (adequate)	4	5 (excellent)	raw score (1-5 integer)
1a: Ability to synthesize scientific literature	Unfamiliar with and/or unable to meaningfully summarize the current state of knowledge based on relevant scientific literature		Familiar with and understands some key relevant references, but lacks comprehensive knowledge of relevant scientific literature		Thoroughly familiar with and understands current state of knowledge based on relevant scientific literature	
1b: Ability to critically evaluate scientific literature	Unable to identify specific strengths/weaknesses of individual scientific references and/or to identify key gaps in the literature		Able to identify <i>some key</i> relevant high-quality references and some <i>major problems</i> with poor-quality references		Able to distinguish publications of varying quality and to explain specific strengths and flaws	
2a: Ability to formulate hypotheses	Requires extensive guidance to formulate a general scientific question <u>and</u> unambiguous testable hypotheses		Limited ability to formulate and state a general scientific question <u>and/or</u> unambiguous testable hypotheses		Able to formulate and clearly state a general scientific question <u>and</u> unambiguous testable hypotheses	
2b: Ability to design appropriate experiments	Requires extensive guidance to design appropriate experiments to unambiguously test their hypotheses		Able to design, with moderate assistance, appropriate experiments to unambiguously test their hypotheses		Able to design, with minimal assistance, appropriate experiments to unambiguously test their hypotheses	
Overall Total (4-20):						

MS Thesis Rubric (Each graduate advisory committee member completes after the thesis defense)

Level of Achievement (2 and 4 are intermediate scores)

Assessment Criterion	1 (poor)	2	3 (adequate)	4	5 (excellent)	raw score (1-5 integer)
3a: Ability to collect data	Requires extensive supervision with laboratory and/or field data collection; and/or poor data quality/integrity		Able to collect reliable laboratory and/or field data with moderate supervision.		Able to collect reliable laboratory and/or field data with little supervision.	
3b: Ability to analyze data	Requires extensive assistance to thoroughly and correctly analyze thesis data		Able to thoroughly and correctly analyze thesis data with moderate assistance		Able to thoroughly and correctly analyze thesis data with little assistance	
3c: Ability to interpret data	Requires extensive assistance to thoroughly and correctly interpret thesis data		Able to thoroughly and correctly interpret thesis data with moderate assistance		Able to thoroughly and correctly interpret thesis data with little assistance	
4a: Expertise in area of specialization	Written thesis and defense reveal serious deficiencies in comprehension of thesis topic and relevant literature		Written thesis and defense reveal adequate comprehension of thesis topic and relevant literature		Written thesis and defense reveal exceptional comprehension of thesis topic and relevant literature	
4b: Understanding how thesis contributes to field	Written thesis and defense reveal serious deficiencies in understanding how thesis contributes to the field		Written thesis and defense reveal adequate understanding of how thesis contributes to field		Written thesis and defense reveal exceptional understanding of how thesis contributes to field	
5: Effectively communicate scientific findings in writing	Numerous problems with thesis/manuscript composition		Adequate thesis/manuscript composition, lacking in one or more minor aspects.		Thorough, coherent, focused literature review; complete, concisely described methods; clear data presentation and explanation; rigorous data analysis and interpretation	
Overall Total (6-30):						

MS Public Defense Rubric (all PBEE faculty and graduate advisory committee members complete after the thesis seminar)

Level of Achievement (2 and 4 are intermediate scores)

Assessment Criterion	1 (poor)	2	3 (adequate)	4	5 (excellent)	raw score (1-5 integer)
6: Effectively communicate scientific findings in oral presentations						
6a: Clarity of speaking	Insufficient loudness, overly rapid or slow pacing, lack of confidence, etc.		Adequate audibility, pacing, confidence, etc.		Exceptional audibility, pacing, confidence, etc.	
6b: Effective visual aids	Some graphs/tables/videos are uninformative, unnecessary, difficult to understand, cluttered, or illegible		Most graphs/tables/videos are informative, necessary, easily understandable, uncluttered, and visible/legible throughout room		All graphs/tables/videos are informative, necessary, easily understandable, uncluttered, visible/legible throughout room	
6c: Clarity of scientific explanation	Poor explanation of broader context, approaches, results and data analyses		Average explanation of broader context, approaches, results and data analyses		Exceptionally clear and concise explanation of broader context, approaches, results and data analyses	
6d: Ability to understand and appropriately respond to questions	Difficulty with understanding multiple questions, and/or responses are inadequate or do not directly address question		Adequate understanding of and responses to all questions		Thorough, concise and informative responses to all questions	
Overall Total (4-20):						