

# DEPARTMENT OF PLANT AND SOIL SCIENCES

## GRADUATE STUDIES POLICY

### PART I. PROGRAM HISTORY

#### A. STATEMENT OF PURPOSE

The overall goals of the graduate programs in Plant and Soil Sciences are to achieve a national and international reputation for research excellence and to make important contributions to the educational mission of the University. Focal areas in the Department include:

- Plant Biology and Biotechnology
- Environmental Soil Science
- Plant Pathology
- Crop Production and Weed Science
- Landscape Horticulture

Our programs have an excellent record of placing graduates in academia, research institutes, governmental departments, private industry, consulting firms, public and private gardens, and small businesses. Many of our graduates, particularly in landscape horticulture, contribute to local economies by being self-employed in their area(s) of expertise.

#### B. DATE OF PERMANENT STATUS

The Department of Plant and Soil Sciences (renamed from the Plant Science Department in 1990) received permanent approval from the University of Delaware Board of Trustees to award the:

- Master of Science degree (M.S.) in Plant and Soil Sciences on July 7, 1958,
- Doctor of Philosophy degree (Ph.D.) in Plant and Soil Sciences on December 7, 1968,  
and
- Non-thesis Master's of Plant and Soil Sciences in September 1996.

The Department Chairperson is responsible for administering these degree programs.

#### C. DEGREES OFFERED

Our department offers the Master of Science and the Doctor of Philosophy degrees in the plant and soil sciences. Two graduate areas exist in the department, namely:

- **Plant Science** (M.S. thesis, M.S. non-thesis, Ph.D.) which involves course work in plant molecular biology, plant breeding, plant pathology, plant tissue culture, horticulture, crop science, plant anatomy and/or plant physiology with thesis research in one of those areas; and

- **Soil Science** (M.S. thesis, M.S. non-thesis, Ph.D.) with course work and thesis research in soil chemistry, soil fertility and management, soil physics, soil microbiology and biochemistry, environmental microbiology, soil and water quality and soil formation and biogeochemistry.

## PART II. ADMISSION

### A. ADMISSION REQUIREMENTS

**Admission to the graduate program is competitive. Those who meet the stated requirements are not guaranteed admission, nor are those who fail to meet all of those requirements necessarily precluded from admission if they offer other appropriate strengths.**

Admission to the graduate program in Plant and Soil Sciences is dependent upon the applicant's success in identifying a potential advisor who conducts research in the applicant's area of interest and who also has financial resources sufficient to fund a research project. Applications are evaluated only when an advisor specifically requests that the student's application be reviewed. Ideally, students may contact advisors directly to pursue study in their laboratories. Graduate students may also apply to the department, and advisors will examine the applicant pool to select students whom they are interested in advising. A financial/research arrangement is then made between an advisor and a student contingent upon student acceptance by the Department Graduate Committee. It is recommended that applicants contact faculty and apply well in advance of applicable deadlines, so as to increase the likelihood of obtaining a position in their area(s) of interest.

To officially apply for admission, see <http://www.udel.edu/gradoffice/apply/> for detailed instructions, web-based forms, and contact information. Documents required for Departmental review include:

- Statement of research interest(s), including an identification of the PLSC faculty member(s) from whom the applicant has obtained an informal commitment of support or whom the applicant feels could best serve his/her interests;
- Resume;
- Official transcripts of all undergraduate and graduate studies (minimum 2.5/4.0 cumulative and 3.0/4.0 within major; recommended minimum 3.0/4.0 cumulative and 3.5/4.0 within major)
- Results of the Graduate Record Examination (GRE) taken within the previous five years
  - pre-August 1, 2011 GRE: minimum of 1050 combined verbal and quantitative; recommended minimum combined score of 1150
  - post-August 1, 2011 GRE: minimum 300 combined verbal and quantitative; recommended combined score of 305

- Three letters of recommendation from individuals knowledgeable of the applicant's academic preparation and potential ability as a graduate student; and
- Results of the Test of English as a Foreign Language (TOEFL) (minimum 213 computer test, or 79 IBT) for international students who have not previously received a degree from a college or university within the United States. Alternatively, the Department is provisionally accepting results from the International English Language Testing System (IELTS) (minimum 6.5 overall with no individual sub-score below 6.0).

The values stated above for GPA and GRE are not absolute, provided the applicant can provide evidence of excellence in the other requirements or has desirable qualities that bear directly on the position being considered. Favorable qualifications would include, but are not limited to, undergraduate research experience, exceptional letters of reference, clear evidence of high motivation for the degree, and strong support from the proposed advisor.

The Office of Graduate and Professional Education has additional requirements not listed above. Photocopied scores are not acceptable for admission, but may be used during the initial stages of finding an advisor. Contact the current Graduate Studies Coordinator (see [http://ag.udel.edu/plsc/plsc\\_grad.html](http://ag.udel.edu/plsc/plsc_grad.html)) with questions concerning specific Departmental requirements.

## **B. PRIOR DEGREE REQUIREMENTS**

- Applicants for the Ph.D. degree must have received at least one undergraduate degree with or without a subsequent M.S. degree.
- Applicants for the M.S. degree (thesis and non-thesis) must have at least one undergraduate degree.

Since the Departmental focal areas are diverse, the degree requirements are tailored to the subject of interest. For example, a strong background in the sciences and possibly math will generally be viewed favorably for applicants interested in one of the Department's science-oriented disciplines within Soil Science or Plant Science. Students applying to more artistically-oriented programs (e.g., Landscape Design) may benefit from having previously taken art-related courses.

## **C. APPLICATION DEADLINES**

The official application deadlines are:

- **July 1** for the following Fall semester, and
- **December 1** for the following Spring semester.

There is no special deadline to request admission with financial support, as **it is the Department's policy not to accept a graduate applicant unless funding is available** or

provided by the applicant. However, applying early may increase chances that a desired position is still available.

The Department's faculty and corresponding research interests can be found on the Departmental web site.

#### **D. SPECIAL COMPETENCIES NEEDED**

None.

#### **E. ADMISSION CATEGORIES**

Students are accepted in the following degree programs:

- M.S. – Master of Science (thesis) in Plant and Soil Sciences
- M.S. – Master of Science (non-thesis) in Plant and Soil Sciences
- Ph.D. – Doctor of Philosophy in Plant and Soil Sciences

##### *Part-time students*

In some circumstances it is possible to pursue a degree on a part-time basis. However financial aid from the Department will not be provided to students in this category.

##### *Provisionally-accepted students*

Full and part time students may be admitted to the program with provisional status if there are deficiencies in their academic backgrounds, as determined by the Department. Deficiencies typically include an inadequate academic background, particularly a lack of appropriate course work in the major area and are usually remedied by satisfactory performance in a course(s) in the deficient area. A letter of provisional admission will indicate specific area(s) of academic deficiency, and the time limits for satisfactory completion of course(s) needed to make up deficiencies. Satisfactory completion of the stipulations in the letter of provisional admission will result in a change of status from provisional to regular student status. The student's advisor and the Department Chairperson will inform the student and the Office of Graduate and Professional Studies of the change in status. Students who do not complete the remedial training in the stipulated time may be expelled from the program.

#### **F. OTHER DOCUMENTS REQUIRED**

None.

## **PART III. ACADEMIC PROCEDURES**

### **A. DEGREE REQUIREMENTS**

#### **1. COURSE REQUIREMENTS**

*Core Requirements (Mandatory for all Plant and Soil Sciences graduate students – all degree types)*

- Professional Development: PLSC 802 (1 credit hour); one time during degree
- Seminar Series: PLSC 865 (1 credit hour) or equivalent seminar series related to student's degree; Ph.D. students must take for credit at least two semesters during degree and M.S students must take for credit one or more semesters during degree.
- Research Ethics: This requirement can be met by Professional Development (PLSC 802), or a class such as PHIL 667/UNIV 604 "Research Ethics" (3 credit hours; 1 semester/degree). The latter additional research ethics class is not a requirement, but it is strongly recommended in order to provide students with more exposure to issues encompassed by research ethics.

*Credit Hours*

Please see “Core Requirements – all degree types” above for additional required courses. **Students must meet with their advisors and have their plan-of-study approved each semester.**

<b>M.S. (thesis option)</b>	The minimum number of credits required is 30 credit hours. A minimum of 18 credit hours must consist of fixed-credit courses, and at least 12 of these must be from courses offered by the Department of Plant and Soil Sciences. Of the remaining 12 credit hours of the 30 credit minimum, 6 must be for thesis (PLSC 869) with the balance consisting of a maximum of 6 credit hours of research (PLSC 868) and/or independent study (PLSC 666/866). Additional courses must be approved by the student’s advisory committee.
<b>M.S. (non-thesis option)</b>	The minimum number of credits required is 30 credit hours. A minimum of 24 credit hours must consist of fixed-credit courses, and at least 12 of these must be from courses offered by the Department of Plant and Soil Sciences. Students in this program are additionally required to conduct an independent study project (PLSC 666/866) and to present its results in a departmental seminar. Credit hours for PLSC 666/866 cannot be applied to the 18 credit hour minimum. An individualized plan of study is developed by the student in consultation with the student's graduate advisory committee.
<b>Ph.D.</b>	In order to provide freedom and flexibility to the student’s coursework, there is no set number of credits for the Ph.D. degree, with the exception that 9 credit hours of dissertation (PLSC 969) are required. Rather, degrees will be earned by scientific knowledge, skills and competence achieved. It is the responsibility of the student, major advisor and committee members to construct an effective program of study and research that will achieve these goals.

## 2. NON-REGISTERED REQUIREMENTS

### *Seminar Attendance*

Graduate student participation in the seminar series is a crucial and integral part of the graduate education process. Students benefit by being exposed to new and different areas of science, meeting and interacting with renowned scientists and observing many different and effective methods of presentations. In addition, senior graduates benefit from presenting their final research seminar (exit seminar) in front of their peers and faculty. This allows for a more professional setting for the presentation and affords an opportunity for the student's peers and departmental faculty to participate. In some instances, this may be the only opportunity for many faculty and graduate students to observe a specific student in a professional setting. It further presents an opportunity for the entire department to learn more about the research being conducted throughout the department.

1. All graduate students (M.S. and Ph.D.) are expected to attend Departmental seminars (including those presented at the Delaware Biotechnology Institute or other University institutes, if appropriate) or a similar series to help advance them towards their degrees. This is in addition to the seminar classes taken as part of the core degree requirements described above (PLSC865). Registering for the seminar course each semester is encouraged, though not required. Once registered, attendance at these seminars is mandatory. Attendance in the PLSC departmental seminar will be monitored. If a registered student is unable to attend a specific seminar, he/she should notify the seminar coordinator prior to that date. It is at the discretion of the coordinator to excuse absences.
2. All graduating students (M.S. and Ph.D.) will present their final research (exit) seminar during the regularly scheduled PLSC Departmental Seminar series. It is expected that the student will present a high quality, professional seminar. At the discretion of the student's advisory committee, this may or may not substitute for the final defense seminar, typically given during the actual final defense. It is the responsibility of the student and his/her major professor to meet with the faculty member in charge of seminar well in advance of the graduation date for that semester to reserve a seminar date. Exceptions to the above will be granted rarely and only under extraordinary circumstances.

### *Graduate Student Teaching Experience*

Communication skills are an important asset to all professionals in the fields of plant and soil sciences as well as teaching and extension professionals. Students can develop their oral communication skills by the presentation of seminars and research papers; however, exposure to other aspects of communication is also needed. The primary objectives of the teaching/communication activity are to provide students with a meaningful experience and to enhance their ability to compete in the job market.

To this end, students funded with a research assistantship are required to participate in an approved teaching/communications project; this requirement does not apply to students funded with a teaching assistantship. Master's and 3-year Ph.D. students (those Ph.D. students already

possessing a master's degree) are required to complete one teaching/communication project; 5-year Ph.D. students (those not possessing a master's degree) are required to complete two projects. If circumstances dictate, the student's advisor may waive the teaching/communication project requirement, in which case the advisor should notify the Office of Graduate and Professional Education of this decision.

Normally, this communication project will consist of teaching or participation in a classroom setting. In recognition of the diverse backgrounds of students and their personal needs, including degree of English proficiency, alternative experiences to fulfill this requirement may include but are not limited to:

- guest lecturing
- design one or more lab experiments for a course
- design and develop teaching aids, such as image collections, audiovisual packages, etc., for classroom use or use outside the classroom (e.g., extension agent education)
- instructing fellow students in particular skills (e.g., photographic techniques)

International students who wish to present a lecture or similar classroom experience to undergraduate classes must first be evaluated and approved by the University's English Language Institute for their language proficiency.

### **3. PROCEDURE FOR PETITIONS FOR VARIANCE IN DEGREE**

Requests for variance in degree requirements (e.g., course substitution policies, completion deadlines, etc.) must be approved by the advisor and ideally discussed with and agreed upon by the student's entire graduate committee. (See "Courses ineligible towards degree" below.)

### **4. GRADE MINIMUMS**

See University policy.

### **5. COURSES INELIGIBLE TOWARDS DEGREE**

Registration as a listener (L) or enrollment in undergraduate-level courses will not apply toward the degree. Course work which is not previously approved may be judged unacceptable by the graduate advisory committee and, therefore, should be discussed with committee members when registering.

### **6. ENGLISH COMPETENCY**

Students are expected to communicate effectively in written and oral English, including the ability to concisely present their data and compose a manuscript or research proposal. This will be assessed by the advisor and graduate committee and, more formally, during seminar presentations.



## **B. COMMITTEES FOR EXAMS, THESIS, OR DISSERTATIONS**

### **1. PROCEDURE FOR SELECTING COMMITTEE MEMBERS**

The major advisor and student should discuss potential committee members who might provide support for the student's research. It is the responsibility of the graduate student to ask each committee member if they are willing to serve.

*Requirements for the composition of advisory committees are:*

#### **M.S.**

- advisor
- at least two members of the full-time faculty of the University of Delaware
- Department Chairperson
- two or more members must hold primary appointments in the PLSC Department
- scientists outside academia (acceptable if appropriate for research but not required)

#### **Ph.D.**

- advisor
- at least three members of the full-time faculty of the University of Delaware
- Department Chairperson
- at least one committee member must be from another Department in the University or from outside the University
- two or more members must hold primary appointments in the PLSC Department

### **2. DEADLINES**

#### *Establishment*

The graduate committee must be established before the end of either the first or second semester after matriculation, depending on the applicable degree program. Coincident with its establishment, it is the responsibility of the advisor to notify the Department Chair in writing of the committee members and affiliations. (See Expected Timelines C.1 below.)

#### *Meetings*

Graduate committees must meet at least once each year and meetings every 6 months are recommended. It is the responsibility of the student to organize the meetings; failure to do so will be apparent in the required annual progress report (see section D1 below) and will come to the attention of the department chair and graduate studies coordinator for action.

*Responsibilities of committee members include the following:*

- Work with student to develop a program of study
- Review research proposal defense and provide recommendations

- Ensure acquisition of skills (competence in certain laboratory, greenhouse, and/or field research techniques is essential for completion of an acceptable thesis or dissertation) are developed
- Serve as advisory body during period of candidacy
- Administer written and oral qualifying examinations to Ph.D. candidates
- Establish the contribution of the thesis or dissertation to chosen area of expertise and determine the degree of scholarship attained by the student

### **3. EXAMINATION AND GRADING POLICIES**

Ph.D. candidates must have at least one year between their qualifying exam and their defense.

Formal grading of committee examinations is at the discretion of the student's graduate committee.

### **4. GUIDELINES FOR RESEARCH PROPOSALS INVOLVING HUMAN OR ANIMAL SUBJECTS**

Students must attend human or animal subjects training and request approval from the human or animal subject committee at the University. Proposals that include interviews, case studies, or other interrogative methodologies must have all questions approved by the University Human Subjects Review Board.

### **5. PROCEDURES FOR THESIS/DISSERTATION APPROVAL**

Admission to candidacy for the Ph.D. degree, and acceptance of the M.S. thesis or Ph.D. dissertation in partial fulfillment of the degree requirements, will be recommended if no more than a single dissenting vote is cast by the graduate committee.

### **6. PROCEDURES FOR CHANGES IN COMMITTEE MEMBERS**

Changes are to be coordinated by advisor and student when necessary.

## **C. TIMETABLE AND DEFINITION OF SATISFACTORY PROGRESS FOR DEGREE**

### **1. ACADEMIC LOAD EXPECTATIONS**

Teaching and research assistants must register for 6 and 9 credit hours, respectively, of graduate-level course work per semester. Students holding fellowships must register for 9 credit hours of graduate-level course work per semester.

### **2. GRADE REQUIREMENTS**

Graduate students receiving financial assistance must maintain a 3.0 overall GPA. If a student's GPA should fall below this level, loss of stipend is possible. A one-semester grace period may be provided in which the student has the opportunity to improve his/her GPA. However, the grace

period is not automatic and requires approval that is initiated by a written request from the faculty advisor to the Department Chairperson and the Office of Graduate and Professional Studies. A student's stipend may be reinstated, if lost for academic or other reasons, only after approval by the Department Graduate Studies Committee and the Department Chairperson. Any graduate student, self-supporting or those receiving financial assistance, with a GPA less than 3.0, is subject to a reclassification of academic status to warning, probation, or termination depending upon the severity of the substandard academic performance. Details are provided in the University Graduate Catalog. It is the responsibility of the faculty advisor to inform the Chairperson of substandard academic performance.

## D. THESIS/DISSERTATION PROGRESS TIMETABLE GUIDELINES

### 1. EXPECTED TIMELINES

Following are expected timelines for new students; these commence during the academic semester (i.e., Fall or Spring) following enrollment. *Students are required to prepare annually a one-page report of his/her degree progress and submit it to the graduate advisory committee, with a copy forwarded to the department chair and graduate coordinator.*

*Students for M.S. degree*

<b>M.S. full-time (thesis, or non-thesis option<sup>1</sup>)</b>	
<b>Year 1</b>	<p>1.1 Primary advisor chosen prior to acceptance</p> <p>1.2 Committee chosen before end of first academic semester post- matriculation</p> <p>1.3 Advisor notifies dept chair of advisory committee composition</p> <p>1.4 Committee meeting before end of first academic semester post- matriculation</p> <p>1.5 For thesis M.S., proposal defense before the end of the second academic semester post-matriculation</p>
<b>Year 2</b>	<p>2.1 Committee meeting before end of third academic semester post- matriculation</p> <p>2.2 Degree defense<sup>1</sup> (at least six months must separate time of proposal defense and degree defense)</p>

<sup>1</sup> Non-thesis option master's students must pass an oral examination administered by their graduate advisory committee.

<b>M.S. part-time</b>	
<b>Year 1</b>	<p>1.1 Primary advisor chosen prior to acceptance</p> <p>1.2 Committee chosen before end of first regular semester post-matriculation</p> <p>1.3 Advisor notifies dept chair of advisory committee composition</p> <p>1.4 First committee meeting held before end of second regular semester post-</p>

	matriculation
<b>Year 2</b>	2.1 Committee meeting in third academic semester post-matriculation
<b>Year 3</b>	3.1 Committee meeting in fifth academic semester post-matriculation
<b>Year 4</b>	4.1 Degree defense (at least six months must separate time of proposal defense and degree defense)

Students are required to prepare annually a one-page report of his/her degree progress and submit it to the graduate advisory committee, with a copy forwarded to the department chair.

Master's students funded by teaching and research assistantships/fellowships must register for a minimum of 6 and 9 credit hours, respectively, each fall and spring semester. This requirement can be met by taking actual course(s), Research (PLSC 868), or Master's Thesis (PLSC 869), or some appropriate combination thereof.

*Students for Ph.D. degree*

There are two general timelines for Ph.D. students: (i) a 3-year program for those students having been previously awarded an M.S. degree, and (ii) a 5-year program for those students possessing a B.S. degree (no M.S.) or those with an M.S. degree who wish to participate in laboratory rotations. The two options within the 5-year program differ only during Year 1. The following timelines are highly recommended for completion of the degree. The normal time to completion for part-time Ph.D. candidates will generally exceed five years.

<b>Ph.D. full-time (3-year)</b>	
<b>Year 1</b>	1.1 Primary advisor chosen prior to acceptance 1.2 Committee chosen by end of second academic semester post-matriculation 1.3 Advisor notifies dept chair of advisory committee composition 1.4 Committee meeting by end of second academic semester post-matriculation
<b>Year 2</b>	2.1 Committee meeting before end of third academic semester post-matriculation for purposes of pre-proposal discussion (recommended) 2.2 Research proposal must be written and turned into committee and defended before end of third academic semester post-matriculation 2.3 Qualifying exams must be held before the end of the fourth semester post-matriculation

	2.4 Participation in the Department's graduate student symposium (at least once during Years 2 – 3)
<b>Year 3</b>	3.1 Committee meeting 3.2 Degree defense (at least six months must separate time of proposal defense and degree defense)

<b>Ph.D. full-time (5-year)</b>		
<b>Year 1</b>	<b>Lab Rotations</b>	<i>1.1</i> Laboratory rotations not to exceed six months <i>1.2</i> Primary advisor chosen by end of rotations <i>1.3</i> Committee chosen at the completion of laboratory rotations or by end of second academic semester post-matriculation, whichever comes first <i>1.4</i> Advisor notifies dept chair of advisory committee composition <i>1.5</i> Committee meeting by end of second academic semester post-matriculation
	<b>No Lab Rotations</b>	<i>1.1</i> Primary advisor chosen prior to acceptance <i>1.2</i> Committee chosen by end of second regular semester post-matriculation <i>1.3</i> Advisor notifies dept chair of advisory committee composition <i>1.4</i> Committee meeting by end of regular second semester post-matriculation
<b>Year 2</b>	<i>2.1</i> Research proposal must be written, turned into committee, and defended during the 2nd year <i>2.2</i> Committee meeting before end of fourth academic semester post- matriculation (may be concomitant with research proposal defense) <i>2.3</i> Participation in the Department's graduate student symposium (at least once during Years 2 – 4).	
<b>Year 3</b>	<i>3.1</i> Qualifying exams must be held no later than the end of the sixth academic semester post-matriculation.	
<b>Year 4</b>	<i>4.1</i> Committee meeting	
<b>Year 5</b>	<i>5.1</i> Committee meeting <i>5.2</i> Degree defense (at least six months must separate time of proposal defense and degree defense)	

Students are required to prepare annually a one-page report of his/her degree progress and submit it to the graduate advisory committee, with a copy forwarded to the department chair.

Upon the recommendation of the doctoral student's advisory committee and the Department Chairperson, students may be admitted to candidacy for the Ph.D. degree. The stipulations for admission to doctoral candidacy are that the student has

- (1) a program of study approved,
- (2) completed one academic year of full-time graduate study at the University,
- (3) passed the program's qualifying examination(s),

- (4) shown the ability to do research, and
- (5) had a research project accepted by the advisory committee.

Ideally, the qualifying exam should be taken after all minimum degree course requirements have been fulfilled (PLSC 802 and PLSC 865), but may be taken as early as one month before that time.

The deadline for admission to candidacy for the fall semester is August 31. The deadline for admission to candidacy for the spring semester is January 31. The deadline for admission to candidacy for the summer is April 30. Responsibility for seeing that admission to candidacy is secured at the proper time rests with the student. For Ph.D. students pursuing 3- or 5-year programs respectively, the qualifying exams must take place at least two or four academic semesters prior to the dissertation defense (described below).

Once the student has met all of the course requirements in a program of study but has not yet met all of the stipulations for passing into candidacy (i.e., is in G1 status), the student must maintain the minimum registration requirements (6 or 9 credit hours) during the fall and spring semesters either as regular courses, Research (PLSC 868), Pre-Candidacy Study (PLSC 964), or as some appropriate combination thereof. Pre-Candidacy Study (PLSC 964) is graded pass/fail. (Students who are classified G1 and are holding a graduate teaching assistantship or tuition scholarship must be registered for a minimum of six graduate credits, and those holding a graduate research assistantship or fellowship must be registered for a minimum of nine graduate credits.) .

Once a student has met all of the stipulations for candidacy and becomes classified with G2 status (candidacy), the student is required to register in a total of nine credit hours of Doctoral Dissertation (PLSC 969) prior to graduation. Registration in Doctoral Dissertation (PLSC 969) and Doctoral Sustaining (PLSC 999) is restricted to students with G2 status. Once the student has completed all course work and has registered in a total of nine credits of Doctoral Dissertation, the student is required to maintain matriculation in the doctoral program by registering for either six or nine credit hours of Doctoral Sustaining (PLSC 999) in subsequent semesters until the degree is awarded. The student may not take any courses while registered for PLSC 999. All students must be registered in the term in which the degree is officially awarded. (Sustaining registration is not required in summer and winter sessions unless the degree is to be awarded at the conclusion of those sessions.)

Advancement to candidacy is contingent upon successful completion of written and oral qualifying examinations (to be completed by the end of the fourth academic semester of a 3-year program, or by the end of the sixth semester of a 5-year program) administered by the student's advisory committee. The student will show written competence in areas selected by the advisory committee. The oral qualifying examination will provide an overview of the concepts and plans making up the proposed Ph.D. project. The oral examination is intended to evaluate the student's abilities in several areas: creative thinking, progress in understanding and formulating a research project, and preparation and presentation of a technical talk. The oral qualifying examination and research proposal defense may take place at the same advisory committee meeting. The written research proposal will be given to committee members at least five working days before the scheduled oral defense. Qualifying exams for progress to degree candidacy may be taken at most

twice. Deadline dates are outlined in the University graduate catalog. Responsibility for seeing that admission to candidacy is secured at the proper time rests with the student.

## **2. THESIS/DISSERTATION DEFENSE GUIDELINES**

An oral defense of the thesis or dissertation is required for all graduate students in Plant and Soil Sciences. Awarding of the M.S. (thesis option) or Ph.D. degree is contingent upon successful oral defense of the research performed, an acceptable thesis/dissertation and a demonstrated knowledge of related disciplines. Students are expected to give a presentation just prior to the oral defense of their thesis/dissertation. The presentation is to be publicly announced within the department at least one week prior to the defense date. A student shall have no more than two attempts to defend their thesis/dissertation. Deliberations of the graduate committee will be limited to committee members, and the outcome immediately conveyed to the student. For Ph.D. students pursuing 3- or 5-year programs respectively, at least two or four academic semesters must be completed between the time of the qualifying exam and the defense. For both the M.S. and Ph.D., the final research defense must occur at least six months after the proposal defense.

Awarding of the non-thesis Master's degree is contingent upon: (i) successful completion of all required and elective course work as determined by the student's graduate advisory committee and (ii) passing an oral examination administered by the student's graduate advisory committee at the termination of the degree program. Non-thesis M.S. students are also required to present their findings to the Department as described above

## **3. FORMS REQUIRED**

Available from the Office of Graduate and Professional Studies.

## **4. CONSEQUENCES FOR UNSATISFACTORY PROGRESS.**

If a graduate student fails to make satisfactory progress toward all degree requirements, permission may be denied to continue in the degree program. This is in keeping with University of Delaware Graduate Student Policy, which can be found at the following website: <http://www.udel.edu/gradoffice/polproc/#progress>. We strongly encourage all graduate students to access and read this information.

*Grievance procedure for termination* – Information on filing a grievance can be found in the University Graduate Section of the University Catalog under Grades and Academic Standing, Probation, and Dismissal.



## **E. ASSESSMENT**

The Department of Plant and Soil Sciences is highly diverse and includes disciplines ranging from Landscape Design to both basic and applied physical and biological sciences. As such, this section is necessarily general in its wording.

### **1. PROGRAM MISSION STATEMENT**

The mission of the graduate programs in the Department of Plant and Soil Sciences is to provide an excellent education within a given discipline area and train students to apply this knowledge in performing research/scholarly activities of high professional standards. As a land-grant entity, the Department is also committed to serving the needs of Delaware and the Mid-Atlantic region.

### **2. PROGRAMMATIC LEARNING GOALS**

Graduates of the Department of Plant and Soil Sciences will demonstrate the following:

1. a high level of knowledge in their respective subject area and related disciplines,
2. a strong competency in performing scholarly activities (conceptualization, execution, presentation), and
3. a commitment to professional ethics and an appreciation of interdisciplinary collaboration.

### **3. CURRICULUM MAP**

See following page.

## Curriculum Map of Graduate Programs in Plant and Soil Sciences

Program activities are presented in broad terms due to the diversity of disciplines within the PLSC Department.

Desired Learning Outcomes	Courses			Program Activities			
	PLSC 802: Professional Development	PLSC865: Departmental Seminar Series	Other courses as determined by advisory committee	Laboratory and Field Work	Preliminary Examinations (Ph.D. only)	Thesis/Dissertation Proposal, Defense, and Presentation	Graduate Student Symposium
Students demonstrate high level of knowledge of their chosen discipline area and related disciplines	Introduce	Emphasize	Emphasize	Reinforce	Emphasize	Emphasize (quality of proposal conceptualization and answers to questions posed)	Reinforce
Students clearly demonstrate an ability to conceptualize a problem/issue, formulate and execute appropriate strategies for resolution, and communicate resulting outcomes in a professional setting	Introduce	Introduce and Reinforce (by example and presentation)	Reinforce	Emphasize	Reinforce	Emphasize (critical thinking, conceptualization, analysis, presentation and publication)	Reinforce
Students develop a critical understanding of professional ethics and an appreciation of interdisciplinary research	Introduce	Emphasize	Reinforce (appreciation for interdisciplinary connections)	Reinforce (ethical recording of research data)	Reinforce	Reinforce	Emphasize

## **PART IV. FINANCIAL AID**

### **A. FINANCIAL AWARDS**

#### **1. TYPES OF AWARDS**

Acceptance of all full-time graduate students in the Department is contingent on the availability of financial support from the Department or from the advisor's research grants. The two types of support commonly available are teaching assistantships and graduate research assistantships. In some cases, fellowships may also be available on a competitive basis. Research assistants receive a stipend 12 months/year (i.e., including summer months). Teaching assistants are paid from their assistantships during September through May only and normally receive comparable pay during the summer from other sources of funding (e.g., advisor's research projects). Graduate students are expected to give their full-time attention to graduate study and may not engage in any other remunerative employment while receiving a stipend.

1. Teaching Assistantships – Students assist in teaching undergraduate and/or graduate courses. Students may be expected to prepare and grade examinations under the supervision of the instructor, handle routine class administrative procedures, counsel and tutor individual students where necessary, and occasionally conduct classes. Total workload may not exceed 20 hours per week. Students should view this as an opportunity to enhance their knowledge and to develop teaching skills at the college level. Assignments are made by the Chair after consultation with faculty member(s) in charge of the course(s), who may or may not include the student's graduate advisor. Students on a teaching assistantship must enroll for a minimum of 6 credits unless they have completed all degree course requirements whereupon they may register in sustaining status.
2. Research Assistantships – Students are typically funded via one of the advisor's research projects for 20 hours per week. This research may or may not be the same as the student's thesis or dissertation research. Students on research assistantships are expected to enroll in a minimum of 9 credits per semester until the course requirements for the degree are fulfilled. After completing the course requirements, students on research assistantships may enroll for a minimum of 6 credits or as sustaining.
3. Fellowships – Department, College, or University Fellowships are usually reserved for students in the advanced stages of their graduate careers to support thesis and dissertation research and writing. They are generally awarded on a competitive basis. Students holding a fellowship must register for 9 credits each semester.

#### **2. POLICY FOR GRANTING FINANCIAL SUPPORT**

A commitment for student funding must be made prior to acceptance by the Department.

For supplemental or alternative funding, please see [http://www.udel.edu/finaid/types\\_of\\_aid.html](http://www.udel.edu/finaid/types_of_aid.html) for information on applying for Pell Grants and/or student loans.

### **3. SUMMER APPOINTMENTS**

All full-time graduate students who are actively receiving a stipend are expected to work on research or other appropriate scholarly activity during the summer months. As stated previously under “Types of Awards”, teaching assistants normally receive a summer stipend from non-teaching sources of funding. The Department does not allow students to obtain additional employment within or outside the University while supported by a stipend. To do so will be viewed as indicating a lack of commitment by the student to his/her graduate program and may result in termination.

### **4. NUMBER OF YEARS OF SUPPORT**

Students pursuing an M.S. degree normally receive two years of financial support, whereas Ph.D. students receive either three or five years of support depending on their particular program. In some cases, extensions may be granted but are not automatic. Extensions must be approved by the advisor or Department Chair depending on the source of the funding.

## **B. RESPONSIBILITIES AND EVALUATION OF STUDENTS ON CONTRACT**

Please see descriptions for “Types of awards” above (IV. A-1)