Academic Requirements, Policies and Procedures

Revised January 2003

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Graduate Studies in Plant Biology

The Plant Biology Graduate Program (PB) faculty represent seven departments including Biochemistry and Molecular Biology, Biology, Chemical Engineering, Food Science, Natural Resources Conservation, Microbiology, and Plant and Soil Sciences at UMass and associated Five College institutions. Faculty research interests encompass a variety of plant science disciplines including metabolism, evolution, ecology, plant-microbe interactions, genetics, and cell and molecular biology. An emphasis is placed on multidisciplinary research with approaches that range from practical to theoretical.

The Program offers both Ph.D. and Masters of Science degrees. A detailed description of the degree requirements is set forth below.

The Ph.D. Degree Program in Plant Biology

I. Course Requirements for the Ph.D. Degree

Doctoral degree candidates must comply with the Graduate School requirement that the equivalent of at least one continuous academic year of full-time graduate work (9 credits per semester) must be spent in residence at the University of Massachusetts, Amherst.

A student must earn 15 credits in formal course work. This requirement must be satisfied by completing three PB core courses (see A below) plus two additional courses that can be selected either from the core courses or other graduate level courses such as those listed in B below. A grade of B or better must be earned in each core course. In the courses that a student is offering to satisfy degree requirements, a minimum standard for satisfactory work is a 3.0 average. A student who in any two semesters, consecutive or otherwise, has semester averages of below 2.8 is subject to dismissal.

A. Core courses for the Plant Biology Graduate Program
   1. Molecular and Cell Biology of Plant Development
   2. Plant Physiology (fall)
   3. Plant Ecology (fall)
   4. Plant Morphology (spring)
   5. Plant Genetics

B. Additional courses that may be selected when offered
   BIOCHEM 623  Advanced General Biochemistry
   BIOLOGY 524  Coastal Plant Ecology
   BIOLOGY 526  Plant Geography
   BIOLOGY 560  Exp. Cell & Mol. Biol
   BIOLOGY 574  Cell Motility and the Cytoskeleton
   BIOLOGY 597C  Vegetation of North America
   ENV SCI 504  Air Pollution Biology
   FOREST 596B  Silviculture
   FOREST 597E  Ecosystem Sciences

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A student who feels that s/he has already satisfied the requirements for a particular course may request to be tested out of that course by the instructor.

C. Journal clubs

Participation in one journal club is required each semester. Students may enroll in a journal club offered by another department or graduate program, with permission of his/her advisor and the instructor. PLNTSOIL 791A, Seminar Preparation and Presentation, can be taken one semester in place of the journal club.

Current Plant Biology journal clubs:
1. Plant Molecular Biology
2. Plant Cell
3. Plant Genetics
4. Plant Stress/Ecology

D. Seminars

Each semester, the Program will sponsor a seminar series. The seminars are generally held on Thursdays at 4:00 PM and feature a research talk from an invited speaker. Graduate students will have lunch with the speaker on the day of the seminar to discuss the topic. All students are required to attend the seminars and participate in the discussion sessions and should therefore, register for 1 credit of BIOLOGY 891B (Seminar Series).
II. Guidance Committee

The Admissions Committee will assign all entering students a Guidance Committee. The latter will consist of PB faculty and will serve as an advisory committee for the student until a Dissertation Committee has been assembled. A student will meet with his/her Guidance Committee at least once each semester to review progress. Following the meeting, the student will summarize the decisions made and will submit the summary, signed by the Chair, to the Graduate Program Director for placement in his/her file.

III. Laboratory Rotations for Non-targeted Ph.D. Students

Non-targeted Ph.D. students will participate in two laboratory rotations during the first two semesters of study (one rotation per semester). The purpose of laboratory rotations is to attain a focused, in-depth research experience which is requisite for a Ph.D. degree in plant biology.

Laboratory rotations will be based on the student's research interests and will permit students to become acquainted with members of specific laboratories, the subjects of study in those laboratories, and possible projects for doctoral research. Expectations regarding time commitment (hours per week) and expected activities/accomplishments during the rotation will be decided jointly by the faculty member and student. The faculty member and student will complete a Practicum Agreement Form which will provide the following information: 1) objectives and planned activities; and 2) evaluation criteria. The student will submit the completed Practicum Agreement Form to the Graduate Program Director. The Graduate Program Director may request changes in the Practicum Agreement Form if the objectives and/or expectations are not clear. The two rotations must occur in different laboratories. Students should register for two credits of BIOLOGY 698A (Practicum) for each rotation.

A. Fall Semester Rotation

The Fall semester rotation will last for approximately 14 weeks, commencing the first week of October and continuing until the end of Wintersession. During the month of September, a weekly seminar will be conducted with PB faculty making brief (20-minute) presentations on their research interests. Students are required to attend these seminars to learn about research interests of PB faculty and potential research projects during laboratory rotations. Students must select a laboratory for the Fall semester rotation by September 30th. The Practicum Agreement Form must be completed and returned to the Graduate Program Director by the end of the first week of October.

B. Spring Semester Rotation

The Spring semester rotation will commence the first week of classes in Spring semester and will continue to the end of the semester (approximately 14 weeks). The Practicum Agreement Form must be completed and returned to the Graduate Program Director by the end of the first week of classes.
C. Summer Semester Rotation

Students entering the PB program in January will complete the first laboratory rotation in Spring semester and the second laboratory rotation during Summer session. The Summer session rotation will commence the first week of June and continue for approximately 12 weeks. The Practicum Agreement Form must be completed and returned to the Graduate Program Director by the end of the first week in June.

D. Expectations For Students and Faculty Participating in Laboratory Rotations

At the conclusion of the second laboratory rotation, the student will select a laboratory in which to complete their dissertation research and obtain approval from the PB faculty member to work in their laboratory. Students that have completed both laboratory rotations will be expected to present their research findings at one of the Plant Biology seminars held during the subsequent Fall semester. Faculty that accept a non-targeted Ph.D. student for a rotation in their laboratory will be expected to have sufficient funds for that student if she/he chooses to work in that lab for their dissertation project.

IV. Targeted Ph.D. Students

If a student has been in correspondence with an individual faculty member prior to submission of an application for admission and if the student has had substantial prior research experience that has culminated in a Master's degree or equivalent, the student can be targeted to the faculty member's laboratory and is not required to participate in rotations. All targeted students must be supported on a Research Assistantship (RA) originating in the sponsor's laboratory or by a Graduate School Fellowship, or other funding source. A faculty member targeting a student must guarantee funding for the student for at least two semesters and will be responsible for further funding, provided the student remains in his/her laboratory. All targeted students must be admitted by the Admissions Committee using criteria identical to those used for other students.

V. Teaching Requirement

All Ph.D. students, whether targeted or not, are required to complete two semesters of teaching while supported by a teaching assistantship (TA). The timing of the teaching requirement for targeted students will be determined by the availability of PB Teaching Assistantships.

VI. Preliminary Comprehensive Examination:

The Preliminary Comprehensive Examination will consist of an oral examination and the defense of an original research proposal.
A. Oral Examination

The first part of the Preliminary Comprehensive Examination will consist of an oral examination based on the student's course work and topics in general plant biology/botany. The purpose of the oral examination is to test the student's knowledge of plant biology. The student should demonstrate more than the ability to recall facts, theories, and principles learned from formal course work. He/she is expected to integrate this knowledge, apply it towards testing hypotheses and solving biological problems, and to be able to discuss and critique data presented in peer-reviewed scientific publications.

The examination will occur at the end of the second semester of study and no later than five weeks following the last day of classes in May or December. The student's Guidance Committee will be asked to provide the Graduate Operations Committee with a list of potential examiners by the add/drop date for that semester. The Graduate Operations Committee will appoint an Examining Committee composed of three PB members by mid-semester. Following the appointment of the Examining Committee, the student will consult with the committee members and decide on a date, time, and place for the oral examination. The student must notify the Chair of the Graduate Operations Committee as to when and where the examination will be held.

Prior to the exam date, the student will meet with each member of the Examining Committee to discuss expectations and the format of the oral examination. Examining Committee members shall provide the student with a list of exam topics, and each committee member may assign one peer-reviewed scientific publication for discussion and critique during the oral examination. The duration of the oral examination may not exceed three hours. The student passes the oral examination if no more than one Examining Committee member casts a negative vote. Students that fail the examination will receive one additional opportunity to take the examination; the second examination must be taken no later than six months after the first exam. Students that fail the second oral examination will be dismissed from the Ph.D. program, and the matter will be presented to the Graduate Operations Committee to determine options available to the student.

B. Defense of Original Research Proposal

1. General Comments

The second part of the Preliminary Comprehensive Examination will be an oral defense of an original research proposal. The research proposal must take the form of a formal written document which must be approved by the Proposal Committee and placed in the student’s official Plant Biology file. A copy of the proposal, signed by the committee members, must be placed in the student’s file. The oral defense of this proposal must be passed before the end of the fourth semester of study unless special permission for a one-semester extension is granted by the Graduate Operations Committee. The scientific objective of the proposal may be, but need not be, in the area...
of the dissertation research. The proposal must be based on original ideas and certified as such by the Proposal Advisor.

The oral examination is designed to test the competence of the doctoral candidate in skills not evaluated by previous examinations. The skills to be tested include:
- the ability to become expert in a limited area of the current research literature,
- to conceive an original research project,
- to apply newly learned tools to the investigation,
- to envision the possible results of planned experiments,
- to set criteria by which the data and results will be assessed,
- and to establish reasonable priorities among possible approaches to the problem.

2. Detailed Guidelines

Step One. On the first day of classes of the fourth semester of study, the candidate will submit an abstract of the proposed research project to the Chair of the Graduate Operations Committee. The abstract should start with a carefully worded title, the student's name, the date and the statement: "Abstract of a research proposal submitted to the Plant Biology Graduate Program, University of Massachusetts, Amherst, in partial fulfillment of the requirements for the Preliminary Comprehensive Examination." The abstract should begin with an introductory paragraph which summarizes succinctly the background and relevance of the proposed research. This should be followed by a direct and lucid statement of the problem, the hypotheses to be tested, the objectives, and the experimental approaches to be employed. Not more than two thirds of the text should be devoted to background and introduction; not less than one third should be devoted to the specific experiments proposed. The abstract should be one or two pages in length and should contain about five literature references most pertinent to the problem.

Step Two. Within two weeks following receipt of the abstract (February 15 or September 15) the Chair of the Graduate Operations Committee (GOC) will appoint a Proposal Committee of at least three members, one of whom shall be the Proposal Advisor; the Proposal Advisor may not serve as Chair. Members of the committee will generally be drawn from the PB faculty, although non-PB examiners may be included. The Chair of the GOC will notify the committee members of their appointment and provide them with copies of the Abstract. Within ten calendar days of receipt of the Abstract, the Proposal Committee Chair will notify the student and the Chair of the GOC whether or not it is approved. If disapproved, the Proposal Committee Chair will discuss the remedy with the student.

Step Three. The candidate, working with the PB Program Manager, will arrange a satisfactory time and place for the examination. The examination should be conducted prior to April 1 or November 1.

Step Four. The candidate will prepare the formal research proposal. The Chair of the Graduate Operations Committee may advise the student during its preparation, but the role of the student's Proposal Advisor (and other faculty) shall be limited. The proposal should be a carefully written document with a maximum length of twelve double-spaced size 12 font pages. Old proposals on file in the PB office may be consulted to resolve any
questions on form and style. The cover page of the proposal should contain the title, the student's name, the date, and the statement: "A research proposal submitted to the Plant Biology Graduate Program, University of Massachusetts, Amherst, in partial fulfillment of the requirements for the Preliminary Comprehensive Examination."

The first five to six pages should provide:
(a) a brief review of the background and rationale of the problem with particular concern for recent developments in the field and
(b) a simple, concise statement of the research problem or question that the student is proposing to investigate.

The second five to six pages should provide:
(a) a lucid statement of the hypothesis the student has developed to investigate the problem and
(b) a moderately detailed statement of the rationale and methodology of the experiments to be carried out, an outline of the results anticipated, and a description of how the results will be interpreted.

Proposals should be divided into short subsections (roughly one-half to one and one-half pages in length) organized into a logical sequence. Each subsection should have an informative title. Titles that state the conclusion or the specific question are more effective than vague and general titles. For example, “Coat protein levels affect the ability of a TCV sat-RNA to regulate virus movement in Arabidopsis thaliana” is more specific and, therefore, preferable to “Coat protein regulations”.

The bibliography should include the title of and inclusive pagination for each reference cited.

Each member of the Proposal Committee will receive a copy of the proposal from the candidate, at least 10 calendar days prior to the date of the examination. Members of the Proposal Committee have up until 5 calendar days before the scheduled examination to move for rejection of the proposal as submitted. To do so, the committee members will contact the Chair of the Proposal Committee who, in consultation with all committee members, will decide what steps are necessary in order to proceed with the examination.

**Step Five.** The candidate will defend his/her research proposal before the Proposal Committee. In general, the candidate will be expected to open the examination with an oral presentation of approximately 30 minutes duration (illustrated with a powerpoint/computer-based presentation, slides and/or transparencies) outlining the salient points of the proposal. During the defense, the student must show that the experimental approach proposed is scientifically valid and that the techniques to be employed will yield useful and interpretable information. Furthermore, (s)he must demonstrate a familiarity with the background information in the area of research and with the scientific basis of the methodology to be employed in the proposed investigation.

The remainder of the examination will be devoted to the discussion of questions posed by individual committee members. At the conclusion of the examination the student will leave the room. The student should remain available to the committee as it deliberates.
and votes. While the Graduate Operations Committee (GOC) representative will not serve as an examiner, (s)he may ask occasional questions during the examination, and may advise the committee on their options, and participate in the discussion after the student has left the room. The GOC representative will not, however, vote on the final decision.

**Step Six.** An evaluation of the candidate's performance will result in a "Pass", "Conditional Pass", or "Fail". A “Conditional Pass” will be accompanied by specific stipulations for further work. Students who are judged to have failed the examination will receive one additional opportunity to take the examination. The Proposal Committee administering the examination will decide if the student will be reevaluated on the same proposal or whether a new proposal and new committee are required. The second examination must be passed within six months of the first examination. Students who fail the second examination will be dismissed from the Program.

Immediately following the examination, the Chair of the Proposal Committee will communicate all comments and concerns of the Proposal Committee to the candidate. S(he) will also transmit, in writing, the results of the Proposal Examination and all recommendations of the Proposal Committee (“Pass”, “Conditional Pass”, or “Fail”) to the Graduate Operations Committee (GOC). The GOC will then submit a written recommendation to the PB Director concerning the student’s future in the Program.

**VII. Dissertation**

**A. Dissertation Committee**

Students must assemble a Dissertation Committee no later than the end of fifth semester of study in the PB Program. The committee will consist of the Research Advisor, who will serve as the chair for the committee, plus three additional members. Two of additional members must be faculty in the PB Program, while the third member may be a member of the PB Program, a graduate faculty member in another program or department, or an expert from outside the University of Massachusetts, Amherst. The names of the committee members must be submitted to the PB office and subsequently approved by the Graduate Operations Committee and the Graduate School. It is the responsibility of the Dissertation Committee to monitor the student's research and progress toward the Ph.D. degree. It is the obligation of the committee chair to make sure that the Dissertation Committee and the student meet at least **once per year**. Following each meeting, the student will summarize the decisions made and will submit the summary, signed by the Chair, to the Graduate Program Director for placement in his/her file.

**B. Dissertation Prospectus**

A student is required to present a Dissertation Prospectus to his/her Dissertation Committee and receive approval of its contents by the end of the sixth semester of study. The prospectus must be submitted to the Graduate Records Office at least seven months prior to the date of the Final Doctoral Oral Examination. It must be
accompanied by a cover sheet signed by each member of the Dissertation Committee  
(See Sample Cover Sheet/Signature Page in the Graduate Student Handbook).  A  
copy of the prospectus must be placed in the student’s file in the PB office.

C. Final Doctoral Oral Examination (Dissertation Defense)

The format of the Ph.D. dissertation document is set by the Graduate School  
(Refer to the handout Typing Guidelines for Master’s Theses and Doctoral  
Dissertations available in the Office of Degree Requirements).  It is the responsibility  
of the student to learn about and follow the rules governing the dissertation format.  
The student must deliver his/her completed dissertation to the Dissertation Committee  
no later than four weeks before the Final Oral Examination.  The time and place of  
the Final Oral Examination must be publicly announced by the Graduate School;  
information as to the time and place of the examination must, therefore, be submitted  
to the Graduate School by the Graduate Program Director at least three weeks prior to  
the examination.

The Final Oral Examination will consist of two parts.  The student will first  
present an open seminar on his/her research results.  The seminar will be followed by  
questioning by the Dissertation Committee.  The seminar and the questioning by the  
committee can take place on the same day or on different days.

VIII. Evaluation of Research

To be successful at research, a student must perform well in a number of areas.  
Beginning with the one-semester rotation, a student’s performance will be assessed  
each semester as described in Appendix C, pp. 16-17.  The evaluation will be placed in  
the student’s file in the PB office; a copy will be sent to the student.

Students with “Poor” evaluations for two consecutive semesters will lose their  
stipends (TA or RA) and be terminated from the Program.

IX. Period of Study

It is expected that students will complete the Ph.D. degree in four to five years.  
Funding (TA/RA) will be guaranteed for up to five years contingent upon satisfactory  
progress towards the Ph.D. degree.  Funding beyond five years may be provided based on  
approval by the Dissertation Committee and the PB Director.

X. Statute of Limitations

The Graduate School has established a six-year Statute of Limitations for the Ph.D.  
degree or four years if the student already has a Master's degree in the same field.
The Master's Degree Program in Plant Biology

I. Introduction

The Master of Science degree program in Plant Biology is designed to accommodate students of diverse academic backgrounds and career plans. All students enrolled in the Master's program are required to perform independent research and prepare a thesis. The PB Program does not offer a non-thesis option, except for the Five Year MS Program open only to Five College undergraduates.

II. Requirements for the Master of Science Degree

A. A minimum of thirty graduate credits obtained as follows:

1. Completion of at least three 600-level Plant Biology core courses (see page 2 for course listings)
2. Six (minimum) to ten (maximum) credits of Master's Thesis (BIOLOGY 699)
3. Four or more credits from PB journal clubs (1-2 cr. per semester - see pg. 3) PLSOIL 791A (Seminar Preparation and Presentation) can be taken one semester in lieu of a journal club.
4. Four credits from Plant Biology seminars and discussions (1 credit per semester – see pg. 3)
5. The remaining graduate credits are elective.

B. Terms and Conditions

Graduate credit is normally given for classes at the 500 level or higher. Graduate credit may be awarded for courses at the 400 level if approved by the Guidance/Thesis Committee. No course may be taken on a Pass/Fail basis except for Master’s Thesis (BIOLOGY 699). In the courses that a student is offering to satisfy degree requirements, a minimum standard for satisfactory work is a 3.0 average. A student who in any two semesters, consecutive or otherwise, has semester averages of below 2.8 is subject to academic dismissal. No more than six credits of Independent Study can be applied towards the M.S. degree. All coursework is subject to approval by the Guidance/Thesis Committee.

III. Guidance Committee

The Admissions Committee will assign all entering students a Guidance Committee. The latter will consist of PB faculty and will serve as an advisory committee for the student until a Thesis Committee has been assembled. A student will meet with his/her Guidance Committee at least once each semester to review progress. Following the meeting, the student will summarize the decisions made and will submit the summary, signed by the Chair, to the Graduate Program Director for placement in his/her file.
IV. Thesis Advisor

A. It is the primary responsibility of the M.S. candidate to select a Thesis Advisor. The selection of the Thesis Advisor should be made by the end of the first semester. A student who wishes to have a particular faculty member serve as his/her Thesis Advisor should inform the Graduate Program Director as to his/her preference. If the candidate desires, (s)he can state his/her choice on the graduate school application.

B. The candidate's selection for Thesis Advisor must be approved by the Graduate Operations Committee. All individuals serving as Thesis Advisors must be members of the Graduate Faculty of the University of Massachusetts, Amherst (which includes five college faculty), and members of the PB Program.

C. Should a candidate's educational objectives change, that individual may make a written request to the Graduate Operations Committee for reassignment to another Thesis Advisor.

V. Thesis Committee

A. Purpose. The Thesis Committee 1) approves the student's choice of courses, 2) evaluates and approves the thesis outline, 3) guides and monitors progress of the thesis project, and 4) conducts the Defense of Thesis Examination.

B. Membership. The Thesis Committee will consist of the Thesis Advisor, who serves as the Chair, and two additional members. One of the latter must be from the PB Program, while the other member may be either a member of the Program, or a Graduate Faculty member in another program or department at the University of Massachusetts, Amherst, or an expert from outside the University of Massachusetts, Amherst. Membership of the committee must be approved by the Graduate Operations Committee and the Graduate School.

C. Timetable. Within two semesters of initiation of the Master's degree program, the Graduate Program Director, upon recommendation of the Thesis Advisor, shall recommend to the Dean of The Graduate School the appointment of the Thesis Committee. It is the responsibility of the Thesis Advisor to ensure that the Thesis Committee meets at least once per semester as long as the student is enrolled in the M.S. program. Following each meeting, the student must prepare a summary of the decisions made, have his/her Thesis Advisor sign it, and submit it to the Graduate Program Director for placement in his/her file.

VI. Thesis Outline and Thesis

A. At the beginning of the third semester of study, the candidate shall prepare a Thesis outline and obtain approval of the outline from the Thesis Committee. The Thesis Advisor will inform the Graduate Program Director when the thesis outline has been approved. The thesis outline, signed by all the members of the thesis committee (see Sample Cover Sheet/Signature Page in the Graduate School Handbook), must be
submitted to the Graduate Records Office at least four months prior to the Defense of Thesis Examination. A copy of the outline must be placed in the student’s file in the PB office.

B. It is expected that the thesis will be of sufficient quality, originality, and substance as to warrant its publication in one or more peer-reviewed scientific journals. A Master’s Thesis must be typed in a particular style and format (refer to the handout, “Guidelines for Master’s Theses and Dissertations”, available in the Office of Degree Requirements), or may be in the form of published (or ready-to-publish) papers with an expanded literature review and section for literature citations. In the latter case, pertinent data not included in the body of the thesis should be incorporated into one or more appendices. The Thesis Committee will determine the exact format of the thesis.

VII. Examination of M.S. Candidates

A. The candidate is expected to provide members of his/her Thesis Committee with a copy of the final draft of the thesis at least two weeks before the Defense of Thesis Examination. The Thesis Advisor shall notify all PB faculty of the date, time, and place of the Final Examination at least one week in advance of the event.

B. The Defense of Thesis Examination will be held in two parts. The candidate will present an open seminar on his/her research results followed by questioning by the Thesis Committee. The seminar and questioning by the committee can, if desired, take place on the same day. The candidate should discuss expectations with each Thesis Committee member prior to the examination. The examination is open to all faculty.

C. Once the faculty have examined the candidate, the Thesis Committee will adjourn and vote on the candidate's performance. Only members of the Thesis Committee are eligible to vote. The recommendation of a majority of the Thesis Committee shall be required to pass the examination. Upon successful completion of the Defense of Thesis Examination and approval of the thesis by the Thesis Committee (approval is denoted by signatures), the Graduate Program Director will submit the result of the Examination and a "Certification of Eligibility for a Master's Degree" form to the Graduate School. The Thesis Advisor and candidate must provide the Graduate Program Director with the requisite data to complete the certification.

VIII. Period of Study

It is expected that students will complete the M.S. degree within two years. Funding will be guaranteed for up to two years contingent upon satisfactory progress towards the M.S. degree. Funding beyond two years may be provided in certain circumstances; the approval of the Thesis Committee and the PB Director will be required.

IX. Statute of Limitations

The Graduate School has established a three-year Statute of Limitations for the M.S. degree.
Appendix A

Typical Schedule for Ph.D. Candidates (Non-Targeted)

First Semester
- one or two Plant Biology core courses
- fall semester rotation chosen by September 30th
- journal club or PLSOIL 791
- PB seminars and discussions

Wintersession
- fall semester rotation continues to end of wintersession

Second Semester
- one or two Plant Biology core courses
- one elective course
- spring semester rotation
- journal club
- PB seminars and discussions
- Preliminary comprehensive exam (part I): Oral examination

Third Semester
- one elective course
- journal club
- PB seminars and discussions

Fourth Semester
- on first day of classes, submit Research Proposal abstract to Chair of Graduate Operations Committee
- journal club
- PB seminars and discussions
- Preliminary comprehensive exam (part II): Defense of original research proposal completed

Fifth Semester and after
- Dissertation Committee assembled by end of fifth semester
- Dissertation Prospectus submitted to Graduate School by end sixth semester
- journal club every semester
- PB seminars and discussions every semester
APPENDIX B

TYPICAL SCHEDULE FOR MASTER’S CANDIDATES

First Semester

• one or two Plant Biology core courses
• journal club or PLSOIL 791
• PB seminars and discussions
• Thesis Advisor selected and approved by end of semester

Second Semester

• Thesis Committee assembled and approved as early in semester as possible
• one or two Plant Biology core courses
• one elective course
• journal club
• PB seminars and discussions

Third Semester

• at beginning of semester, Thesis Outline approved and submitted to Graduate School
• one or two elective courses
• journal club
• PB seminars and discussions

Fourth Semester

• journal club
• PB seminars and discussions
• Defense of Thesis Examination
APPENDIX C (1 of 2)

PhD PRACTICUM / ROTATIONS AGREEMENT FORM

Register for two credits, Biology 698A

Semester ___________________ Student's name: ______________________________________

Student # __________________________ Email: ______________________________________

Project objectives and planned activities (attach any necessary additional information)

Criteria for evaluation (see “guidelines for practicum grading”)

Submitted by:
Student (print name) ____________________________________________________________

Signature __________________________ Date ______________________________

Approved by:
Faculty (print name) ___________________________________________________________

Signature __________________________ Date ______________________________

Submit form to the PB Program office, 217 Morrill South.

Approved by GOC:
Signature of GOC Chair ________________________________ Date ______________________

Revised Spring 2003
Guidelines for practicum grading

Faculty expectations – letter grading for PB rotations/practicum credit

A: Excellent performance in most areas. Shows potential to become a first-rate, independent, highly motivated and highly productive researcher. Likely to overcome any weaknesses.

AB: Good performance in most areas. Shows potential to perform capable, effective, independent research.

B: Adequate, but not much beyond adequate performance in most areas. Potential to become a solid but perhaps not fully independent researcher. Some weaknesses in ability or motivation.

BC: Serious weaknesses in important areas. Advisor has reservations about whether candidate has potential to do PhD level work.

C: Serious inadequacies in important areas. Advisor believes candidate lacks potential to do PhD level work.