Plant Biological Sciences
Graduate Program Handbook

University of Minnesota

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INTRODUCTION

WELCOME
The graduate faculty and staff of the Plant Biological Sciences Graduate Program extend our welcome to new students entering the program. We intend to provide all students with the academic opportunities and environment conducive to a successful and rewarding graduate student experience. We invite you to participate fully in all aspects of the program and to interact with faculty and students across the spectrum of plant sciences at the University of Minnesota.

Plant Biological Sciences encompass all aspects of the biology of plants and fungi. Major emphases include molecular genetics and development, physiological and functional studies at the cellular level, systematic and evolutionary biology, as well as proteomic and metabolomic approaches to a range of fundamental questions in the plant sciences. Program faculty are members of departments in the College of Food, Agricultural, Natural Resource Sciences (CFANS), the College of Biological Sciences (CBS), on the Twin Cities campus, and the Swenson College of Science and Engineering on the Duluth campus. Students in the program have the opportunity to study plants and fungi at all levels of biological organization. Diverse options for field, laboratory, and computational research provide PBS students with a broad range of interdisciplinary and collaborative opportunities.

PURPOSE
This handbook is the primary document of the Plant Biological Sciences Graduate Program. As the program has evolved since inception in 1990, the graduate faculty has developed the handbook by periodic review and revision. Part One presents requirements, guidelines, and policies for graduate education. Part Two describes administrative procedures and policies. Part Three contains general information of interest to students and faculty. Questions concerning information in the handbook may be referred to the Director, Associate Director, or Program Coordinator.
PART I: GRADUATE EDUCATION

DEGREES AWARDED
The Plant Biological Sciences (PBS) Graduate Program offers Doctor of Philosophy (Ph.D.) and Masters of Science (M.S.) degrees. The Ph.D. degree is awarded chiefly in recognition of high attainment as demonstrated by passing required examinations covering subject fields, and by successfully defending a thesis based on original research that makes a significant contribution in plant biological sciences. The M.S. degree is offered under two plans: Plan A, requiring a thesis, and Plan B, which involves additional coursework and special projects instead of a thesis. Most graduate students in the PBS program pursue the Ph.D. degree. Students entering the program who have already completed M.S. degrees generally do not obtain Ph.D. degrees any faster than students entering the program without M.S. degrees.

APPLICATION
Undergraduate Degree and Course Requirements
Incoming graduate students must have a B.S., B.A., or equivalent undergraduate degree at an accredited institution of higher education. Applicants should have a GPA of 3.0 or better on a 4-point grading scale (or equivalent). Admitted students are expected to have completed coursework in plant and animal biology, genetics, organic and inorganic chemistry, differential and integral calculus, and physics. For students with demonstrated academic abilities, coursework deficiencies can be filled during the first year of graduate study.

Application Requirements
Required materials include the University of Minnesota Apply Yourself application, a personal statement, a statement of research interests, three letters of recommendation, GRE scores, and copies of transcripts from prior attended academic institutions. International students for whom English is not the first language also must submit results of English Proficiency tests.

The fee for U.S. citizens and permanent residents is $75 whereas the fee for international applicants is $95. The application fee cannot be waived, deferred, or refunded.

The University of Minnesota application for graduate admission is submitted online via the Apply Yourself admissions system. The deadline for applications is December 1st.
http://www.grad.umn.edu/prospective_students/apply_online.html
This includes uploading unofficial copies of transcripts and academic records directly to the online application. After submission of materials, applicants receive periodic email status updates during the admission process. Applicants may also check their status through the Apply Yourself website.

Competitive applications should provide a clear picture of past scholastic performance and academic potential. The Plant Biological Sciences Graduate Program prefers an undergraduate grade point average (GPA) of at least 3.0 (on a 4.0 scale), and GRE scores above the 60th percentile. International applicants should score at least 79 overall, 21 on Writing and 19 on Reading on the TOEFL test.
Transcripts and Credentials
Applicants indicate in the online application all institutions of higher learning from which credit has been earned. Transcripts or academic records from each of these institutions must be included as well as partial or incomplete transcripts.

Transcripts or academic records are uploaded according to instructions [http://www.grad.umn.edu/prospective_students/transcript_uploads.html](http://www.grad.umn.edu/prospective_students/transcript_uploads.html). English translations should be uploaded together with original transcripts if the transcripts are not in English. Submission of paper or fax copies of this material will cause delays in processing of applications. International applicants should consult [http://www.grad.umn.edu/prospective_students/intl_transcripts_credentials.html](http://www.grad.umn.edu/prospective_students/intl_transcripts_credentials.html).

Applicants who have been previously enrolled at any campus of the University of Minnesota may obtain electronic copies of transcripts from [http://onestop.umn.edu/grades_and_transcripts/unofficial_transcripts.html](http://onestop.umn.edu/grades_and_transcripts/unofficial_transcripts.html).

All transcripts and academic records uploaded to the online application are considered unofficial. Applicants are only asked to submit official transcripts or academic records if admitted. These are to be submitted prior to registration at the University of Minnesota. If the applicant has attended universities that issue official transcripts on request, arrangements should be made to have these materials directly sent from the institution to the Graduate School Admissions Office. An official certified (signature and seal) English translation should be attached if the transcript is not in English. English language translation services in the Twin Cities area include [http://cce.umn.edu/Minnesota-English-Language-Program/](http://cce.umn.edu/Minnesota-English-Language-Program/) or consult the Graduate School Admissions office at 612-625-3014. The University of Minnesota reserves the right to require the submission of official transcripts or credentials at any time.

Required Examinations
Graduate Record Examination (GRE) scores are required by the PBS program. Special subject tests are not required. For more information, [http://grad.umn.edu/admissions/application_instructions/gre/index.html](http://grad.umn.edu/admissions/application_instructions/gre/index.html).

Scores from an English Proficiency Test including TOEFL, MELAB, or IELTS are required of international applicants whose native language is not English. For more information, go to [http://grad.umn.edu/admissions/application_instructions/toefl/index.html](http://grad.umn.edu/admissions/application_instructions/toefl/index.html).

The cost of the internet-based TOEFL test is $140. The overall score range on the test is 0-120. Graduate School minima include an overall score of 79, 21 on the Writing section, and 19 on the Reading section. The operational standard for IELTS is 6.5 and 80 for MELAB. The Twin Cities campus GRE and TOEFL institutional code is 6874.

Letters of Recommendation
Letters of recommendation are considered carefully during the admissions process. The strongest letters come from faculty that have taught or mentored the applicant in research or from academics in a position to comment meaningfully on skills and aptitudes important for success in
scientific research. Such skills and aptitudes include academic performance, creative logical thinking, ability to design and execute experiments to test hypotheses, independent initiative, written and verbal communication skills, and working well within teams.

ADMISSIONS
An Admissions Committee in Plant Biological Sciences reviews completed applications. Factors affecting admissions decisions include grades, letters of recommendation, GRE scores (preferred performance level is a minimum of 60% in each category) and TOEFL scores (see above). Additional considerations include career goals, research interests, personal experience, quality of previous institutions attended, and publications (if any). Applicants are encouraged to correspond with PBS graduate faculty during the process to explore the intersection of research interests with current opportunities. Identification of shared research interests between applicant and potential advisors is crucial to successful admission.

After review of applications, the Admissions Committee invites a group of outstanding candidates to visit Minnesota for interviews during a Welcome Weekend. At this event, the candidates meet the faculty and students and learn about many aspects of the graduate program. Selected students are notified as soon as possible so that program staff can provide assistance with travel arrangements. Interviews may be also conducted by phone or by skype in cases where schedules conflict or travel costs hinder participation in the Welcome Weekend.

The Program formally admits students on a rolling basis. Applicants may expect notification of decisions no later than April 15th.
REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY
Graduate School policies and procedures for completion of the PhD degree are summarized at [http://grad.umn.edu/students/doctoral/index.html](http://grad.umn.edu/students/doctoral/index.html).

The graduate education catalog is available at [http://www.catalogs.umn.edu/grad/index.html](http://www.catalogs.umn.edu/grad/index.html).

Policy details on graduate education are available at [https://www.grad.umn.edu/deans-office/policies_goverance/index.html](https://www.grad.umn.edu/deans-office/policies_goverance/index.html).

The PBS program requires students to maintain a minimum GPA of 3.0 and to complete qualifying examinations by the end of the 5th semester. PBS students are expected to graduate within five to six years from the date of enrollment whereas University policy requires completion of the Ph.D. in no more than eight years from the date of enrollment.

All required coursework should be completed in a timely manner, preferably by the end of the 6th semester, so that students may advance to “1-credit” status and qualify for a stipend increase.

COURSEWORK
Requirements for Ph.D. students include a minimum of 30 course credits and 24 thesis credits. Course credits include required courses and a minimum of 12 credits of supporting coursework. Required and supported course offerings are included, but not limited, to those listed in Table 1. Discuss other possible courses with your advisor and advisory committee. Details on the sequence of required courses are described below.

**PBS 8900 (sec 002):** Itasca Seminars. All incoming students are expected to register for and attend the Itasca Orientation held each year before the beginning of fall semester. The goals of this workshop are to foster interactions among students and faculty; to introduce the students to research design and techniques; and to provide orientation and advising for new students.

**PBS 8081:** Integrative Plant Biology: Connecting Molecules to Ecosystems. The primary goal of this course is to examine questions in plant sciences from multiple perspectives and to explore the integration of diverse approaches to answer questions. Additionally the course teaches critical evaluation of primary literature.

**PBS 8900 (Section 001):** PBS Colloquium. After the first semester, all graduate students and faculty are expected to attend the Plant Biological Sciences Colloquium seminars unless there are conflicts with classes or teaching obligations. These seminars are held from 3:30 to 4:30 each Tuesday during fall and spring semesters. The opportunity to hear and meet invited speakers is an important component of the graduate student experience.

**PBS 8900 (Section 003):** Graduate Student Noon Seminar. This course is taken in the 1st semester for 1 credit. The goal of this seminar is to foster interaction among students and to expose students to the breadth of research in plant biology. Fifth semester students are required to present a seminar on the topic of their thesis proposal and encouraged to participate throughout the semester. First-semester students learn by engaging in discussion about these presentations.

**PBS 8901:** Preparation of Research Proposal. This course is taken in the 3rd semester to prepare students for the Preliminary Written Examination by providing instruction and feedback for the writing of an original research proposal.
**PBS 8123**: Research Ethics in Plant and Environmental Sciences. This course is typically offered as a half-day workshop over two days in January prior to the start of the Spring semester.

**PBS 8994**: Directed Research. First semester students register for this course when conducting rotations. The course is taken for a grade A-F and for 1-5 credits depending on the overall course load (See research rotations).

**Grad 8101**: Teaching in Higher Education. This course is taken for a grade (A-F) prior to or concurrent with students fulfilling their teaching requirement. The DGS may allow substitution of a different course such as PSTL 5106 (001): Multicultural Teaching and Learning in Diverse College Contexts.

**PBS 8888**: Doctoral Thesis Credits. Students may register for thesis credits at any time.

**PBS 8444**: Doctoral Full Time Equivalent. Students who have completed all course requirements advance to “1-credit status” by registering for this 1-credit course each semester until graduation.

### Table 1. Required and supporting coursework for degrees in Plant Biological Sciences

<table>
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<th>Offerings</th>
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<td><strong>REQUIRED COURSES</strong></td>
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<tr>
<td>PBS 8081</td>
<td>Integrative Plant Biology: Connecting Molecules to Ecosystems</td>
<td>Fall</td>
<td>3</td>
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<tr>
<td>PBS 8123</td>
<td>Research Ethics in the Plant &amp; Environmental Sciences</td>
<td>Spring</td>
<td>0.5</td>
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<tr>
<td>PBS 8900 Sec 001</td>
<td>PBS Colloquium</td>
<td>Fall &amp; Spring</td>
<td>1</td>
</tr>
<tr>
<td>PBS 8900 Sec 002</td>
<td>Itasca Seminars</td>
<td>Fall</td>
<td>1</td>
</tr>
<tr>
<td>PBS 8900 Sec 003</td>
<td>PBS Graduate Student Seminar</td>
<td>Fall</td>
<td>1</td>
</tr>
<tr>
<td>PBS 8901</td>
<td>Preparation of Research Proposals</td>
<td>Fall</td>
<td>2</td>
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<tr>
<td>PBS 8994</td>
<td>Directed Research</td>
<td>Fall &amp; Spring</td>
<td>1-5</td>
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<tr>
<td>Grad 8101</td>
<td>Teaching in Higher Education</td>
<td>Fall &amp; Spring</td>
<td>3</td>
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<td><strong>SUPPORTING COURSES (by department)</strong></td>
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<td>Agronomy &amp; Plant Genetics</td>
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<tr>
<td>Agro 4401</td>
<td>Plant Genetics and Breeding</td>
<td>Spring</td>
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<tr>
<td>Agro 4005</td>
<td>Applied Crop Physiology</td>
<td>Spring</td>
<td>4</td>
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<td>Agro 4505</td>
<td>Biology, Ecology &amp; Management of Invasive Plants</td>
<td>Spring</td>
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<tr>
<td>Course Code</td>
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<td>Agro 4888</td>
<td>Issues in Sustainable Agriculture</td>
<td>Fall</td>
<td>2</td>
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<tr>
<td>Agro 5121</td>
<td>Applied Experimental Design</td>
<td>Spring</td>
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<tr>
<td>Agro 5321</td>
<td>Ecology of Agricultural Systems</td>
<td>Spring, odd years</td>
<td>3</td>
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<tr>
<td>Agro 8023</td>
<td>Evolution of Crop Plants</td>
<td>Not currently offered</td>
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<tr>
<td>Agro 8202</td>
<td>Breeding for Quantitative Traits in Plants</td>
<td>Spring, even years</td>
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<td>Agro 8241</td>
<td>Chromosomal &amp; Molecular Genetics of Plant Improvement</td>
<td>Spring, odd years</td>
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<td>Biology</td>
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<tr>
<td>Biol 3270</td>
<td>Introduction to Systems Biology</td>
<td>Spring</td>
<td>3</td>
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<td>Biol 3272 &amp; 5272</td>
<td>Applied Biostatistics</td>
<td>Fall</td>
<td>3</td>
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<td>Biol 3408W</td>
<td>Ecology</td>
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<td>Biol 5407</td>
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<td>Biol 5409</td>
<td>Evolution</td>
<td>Fall &amp; Spring</td>
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<td>Biochemistry</td>
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<td>Bioc 4331</td>
<td>Biochemistry I: Structure, Catalysis, Metabolism and Bioenergetics of Biological Systems</td>
<td>Fall &amp; Spring</td>
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<td>Bioc 4332</td>
<td>Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression</td>
<td>Fall &amp; Spring</td>
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<td>Bioc 4521</td>
<td>Introduction to Physical Biochemistry</td>
<td>Fall &amp; Spring</td>
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<td>Bioc 5361</td>
<td>Microbial Genomics &amp; Bioinformatics</td>
<td>Fall</td>
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<td>Bioc 8001</td>
<td>Biochemistry I: Structure, Catalysis and Metabolism</td>
<td>Fall</td>
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<td>Bioc 8002</td>
<td>Molecular Biology and Regulation of Biological Process</td>
<td>Fall</td>
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<td>Bioc 5216</td>
<td>Signal Transduction and Gene Expression</td>
<td>Spring</td>
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<tr>
<td>Ecology, Evolution &amp; Behavior</td>
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<td>EEB 4068 or 5068</td>
<td>Plant Physiological Ecology</td>
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<tr>
<td>EEB 5042</td>
<td>Quantitative Genetics</td>
<td>Fall</td>
<td>3</td>
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<td>EEB 5053</td>
<td>Ecology: Theory and Concepts</td>
<td>Fall, odd years</td>
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<td>EEB 5146</td>
<td>Science &amp; Policy of Global Environmental Change</td>
<td>Spring</td>
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<tr>
<td>EEB 5221</td>
<td>Molecular Evolution</td>
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<td>EEB 5609</td>
<td>Ecosystem Ecology</td>
<td>Fall</td>
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<td>EEB 8550</td>
<td>Graduate Research Fellowship Proposal Writing</td>
<td>Fall</td>
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<tr>
<td><strong>Forest Resources</strong></td>
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<td>FNRM 5104</td>
<td>Forest Ecology</td>
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<td>FNRM 5411</td>
<td>Managed Forest Ecosystems &amp; Silviculture</td>
<td>Spring</td>
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<td>FNRM 5412</td>
<td>Digital Remote Sensing</td>
<td>Spring</td>
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<td>FNRM 5131</td>
<td>Geographical Information Systems for Natural Resources</td>
<td>Fall</td>
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<td><strong>Genetics &amp; Cell Biology &amp; Development</strong></td>
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<td>GCD 5036</td>
<td>Molecular Cell Biology</td>
<td>Fall</td>
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<td>GCD 8131</td>
<td>Advanced Genetics and Genomics</td>
<td>Spring</td>
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<td>GCD 8151</td>
<td>Cell Structure and Function</td>
<td>Fall</td>
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<td>GCD 8161</td>
<td>Advanced Development Biology</td>
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<td><strong>Horticultural Sciences</strong></td>
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<td>Hort 4071W</td>
<td>Applications of Biotechnology to Plant Improvement</td>
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<td>Hort 4401</td>
<td>Plant Genetics &amp; Breeding</td>
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<td>Ecological Restoration</td>
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<td>PBio 4321</td>
<td>Minnesota Flora</td>
<td>Fall, even years</td>
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<td>PBio 4511</td>
<td>Flowering Plant Diversity</td>
<td>Spring, even years</td>
<td>3</td>
</tr>
<tr>
<td>PBio 4601 &amp; 5601</td>
<td>Plant Biochemistry</td>
<td>Not currently offered</td>
<td>3</td>
</tr>
<tr>
<td>PBio 5309</td>
<td>Molecular Ecology &amp; Ecological Genomics</td>
<td>Not currently offered</td>
<td>3</td>
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<tr>
<td>PBio 5412</td>
<td>Plant Physiology</td>
<td>Not currently offered</td>
<td>3</td>
</tr>
<tr>
<td>PBio 5516</td>
<td>Plant Cell Biology</td>
<td>Spring, odd years</td>
<td>3</td>
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Courses taken as part of the M.S. degree requirements at the University of Minnesota or at another institution may be used to meet the requirement of 12 supporting course credits. Grades of “S”, “C”, or higher are required of all supporting coursework. Two 4000-level courses may be applied toward the supporting coursework requirement automatically. Additional 4000-level courses may fulfill this requirement with special permission of the committee and the DGS.

## REGISTRATION

All graduate students are required to register with the Graduate School each fall and spring term in order to maintain active status. This status is necessary to participate in the University community. Students not registered during a term are considered to have withdrawn and their Graduate School records are deactivated. Those who wish to resume graduate work must request readmission. If readmitted, the individual must register again to regain student status. See [http://onestop.umn.edu/special_for/SpecialRegistrationCategoriesforGraduateProfessionalStudents.html](http://onestop.umn.edu/special_for/SpecialRegistrationCategoriesforGraduateProfessionalStudents.html).

While taking coursework and required thesis credits, students should register for enough credits to maintain full-time status. When finished with coursework and required thesis credits, students should register as full-time equivalent (FTE) (PBS 8444 doctoral/ PBS 8333 masters).

**While on a fellowship that pays tuition,** students should register at full-time status until they have completed their coursework and thesis credit requirements. After that, they should register as full-time equivalent (PBS 8444).

While spending a semester visiting another lab or institution, register for FTE if you are on a fellowship or research assistantship (RA). If not on fellowship or RA, register for GRAD 999 (but see note about GRAD 999, below).

While attending to personal or family issues that take you away from research and the university, request a leave of absence (note two-year time limit).

**GRAD 999** is a zero credit placeholder - zero fee registration with a two-semester limit. It is “intended for graduate students who have completed all coursework and (if applicable) thesis credit requirements, and who must maintain registration to meet the registration requirement”. Under special circumstances, e.g., when a student is conducting research away from the university but doesn’t have RA or fellowship support and needs to avoid paying tuition, students can exceed the GRAD 999 limit by applying for a GRAD 999 extension. Registering for GRAD 999 will result in the loss of University privileges (gym, etc.) The college official approves all GRAD 999

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tr>
<td>PBio 5301</td>
<td>Plant Genomics</td>
<td>Fall</td>
<td>3</td>
</tr>
<tr>
<td>PlPa 5103/8103</td>
<td>Plant-Microbe Interactions</td>
<td>Spring</td>
<td>3</td>
</tr>
<tr>
<td>PlPa 5203</td>
<td>Introduction to Fungal Biology</td>
<td>Fall</td>
<td>3</td>
</tr>
<tr>
<td>Soil, Water &amp; Climate</td>
<td>Soil Biology and Fertility</td>
<td>Fall</td>
<td>3</td>
</tr>
</tbody>
</table>
registration and LOA request. Go to http://www.cbs.umn.edu/learn/graduate-students/policies-forms-academic-resources/forms-graduate-students

ADVISOR AND ADVISORY COMMITTEE
Students are expected to approach PBS faculty individually in order to identify potential advisors and advisory committee members. Communicating directly with particular faculty prior to enrollment in the program is encouraged. Inquiring about research opportunities and discussing potential thesis projects with faculty during the first year is essential. At the time of enrollment, the Associate Director of Graduate Studies (ADGS) may serve as a provisional advisor until a thesis research advisor is identified. A thesis research advisor may be identified either around the time of enrollment or during research rotations but no later than the end of the second semester.

Rotation mentors, advisors, and the program office can help to identify faculty that could serve on an advisory committee. In accordance with Graduate School policy, the advisory committee includes a minimum of four faculty: three representing PBS of whom one is the advisor, and a fourth member representing a supporting program. The designated representative of the supporting field could be a member of PBS so long as the individual also holds an appointment in another graduate program (e.g. GCD, EEB, APS, etc.). Students and advisors who prefer additional expertise are encouraged to assemble committees of more than four members. The function of the advisory committee is to ensure progress toward the degree, oversee a Graduate Degree Plan, provide instructive feedback, and evaluate student performance. The composition of faculty on the advisory committee is naturally subject to change as plans of study develop over time.

ADVISORY COMMITTEE MEETINGS
Students are responsible for scheduling committee meetings. This can be challenging given the complex schedules and numerous responsibilities of faculty. It is advisable to determine the availability of the committee weeks in advance. Consulting the University Google calendar system or Doodle polling (http://doodle.com/) are popular ways to accomplish the task. Should circumstances be such that it is not possible to convene the whole committee, a majority of the committee may suffice. First year students should aim to hold their first advisory committee meeting prior to the Thanksgiving holiday in November.

A step-by-step guide to organizing your first advisory committee meeting:

(1) Ask faculty to serve as committee members.
(2) Identify a meeting time that works for a majority of the committee.
(3) Reserve a conference room through the Plant Biology main office.
(4) Email committee members as soon as possible with the date, time, and location of the meeting.
(5) Send a reminder one day prior to the meeting.
(6) Draft an agenda (no more than one page). This could include a summary of past coursework, present coursework & rotation mentors, plus courses under consideration for future, questions for the committee about the program or graduate school in general, and a brief sketch (3-4 bullet points) of disciplinary areas, problems, questions, or biological systems that you are considering for your PhD research.
(7) Relax and remember that the role of committee is to serve you. Make the most of your meeting by asking questions.

(8) After the meeting, provide the PBS program office with a copy of your agenda, a list of those in attendance, and a brief summary of the meeting.

The advisory committee plays an essential role during the first two years in helping the student to develop a plan of coursework that meets the requirements outlined in Section A. The plan is tailored to meet the individual needs of the student according to past experience and future goals. The Graduate Degree Plan should be submitted during the 3rd semester year and no later than the end of the 3rd semester. The advisory committee must approve of the Graduate Degree Plan before a student submits it online.

**RESEARCH ROTATIONS**

Research rotations provide opportunities to identify potential thesis research projects, advisors, or committee members as well as to gain exposure to a variety of research topics and techniques. First semester Ph.D. students supported on PBS Research Assistantships are required to complete research rotations with two (or occasionally more) faculty members. Research rotations during the first semester are taken for 1-5 credits by registration in PBS 8994: Directed Research under the A-F grade option. The exact number of credits may be adjusted in light of concurrent course credits so that the total does not exceed the allowable maximum. Permission numbers provided by the PBS coordinator are required to complete online registration.

Students and their rotation mentors are expected to define the nature and scope of the rotation activity at the outset. These activities are necessarily diverse according to the interests of the students and faculty. Some rotations focus on reading the scientific literature or learning techniques while others aim to accomplish particular experiments or analyses. Students are expected to engage in regularly scheduled activities, to discuss progress and problems with the mentor, and to evaluate results of the rotation at the end. Students are encouraged to obtain a brief written evaluation on their performance in each of these aspects from the mentor. Evaluations are most valuable to students when they include constructive feedback on areas for improvement in addition to highlighting success. It is in the best interest of the student to provide the program office with a copy of each evaluation.

**FORMS & PROCEDURES**

The Graduate School has initiated online workflows for graduate advisor assignments, committee assignments, and Graduate Degree Plans. These online workflows replace paper forms and streamline the process of assigning and/or updating advisor and committee information. The changes are consistent with ongoing transformation of graduate education and administrative improvements. Students are encouraged to check their current status online and ensure that the information is correct. Students may visit the forms page on the Graduate School website [http://www.grad.umn.edu/students/index.html](http://www.grad.umn.edu/students/index.html) and select the appropriate link depending on their status. Once logged in, students will see their current status and may use the form to request changes.

The College of Biological Sciences (CBS) has instituted the following specific policies and forms
requiring college approval, some of which require supporting letters from the Director of Graduate Studies (DGS):

- Leave of Absence
  - Request for LOA
  - Return from LOA
- Grad 999 - Active status registration
- Time extension request
- Requesting approval for an external committee member

Advisor and Committee Assignments
Online forms are available for assigning and/or updating committee assignments. In PBS, the membership of examining committees is typically but not necessarily the same as that of the advisory committee. Students are expected to complete both Preliminary Oral Examination and Final Examination committee membership forms through the Graduate School forms link described above after having identified the appropriate committee members. The Graduate Student Advisor Assignment online form has replaced the Degree Program Form for updating advisor assignments. This form is completed by program staff and students may request updates to advisor assignments by contacting the PBS program coordinator.

Requesting approval of an external examination committee member
Committee members from outside the University may be added if there is justification that the member brings scientific expertise to the committee which is unique to current research performed by faculty at the University of Minnesota.

A letter of request from the student’s advisor, along with the proposed external committee member’s curriculum vitae (including birthdate) must be submitted to the DGS. The DGS may ask the PBS Steering Committee to review the request and make a recommendation to either proceed with or deny the request to the College office to add the external member to the student’s committee (a full explanation should be provided).

A letter of request from the program DGS must be submitted for College approval to the Associate Dean for Graduate Studies in the College of Biological Sciences. If approved by the College, the graduate program will notify CBS Human Resources of the approval, providing with the external committee member’s birth date, for entry into the PeopleSoft system.

Graduate Degree Plan (soon to be GPAS; until notified follow instructions below)
The Graduate Degree Plan (GDP) is filed online. Students who have previously submitted a hardcopy form that is already on file need not complete an online Graduate Degree Plan, and may use the online workflows to update information. The Graduate Degree Plan should list all coursework, completed and proposed, that will be offered in fulfillment of degree requirements in the major field and in the supporting field including any transferred credits. It is recommended that only coursework specifically fulfilling degree requirements be included in the plan. Other additional coursework should not be indicated.

Process improvements are being conducted on two graduate and professional student workflows.
The GDP milestone must be on a student's record before s/he is eligible to access the committee workflow. This means the GDP must be approved by the college and/or program in addition to central data entry completed by Graduate Student Services & Progress (GSSP) and the Office of the Registrar (OTR). Also, a student is allowed only one committee request in the workflow at a time.

The review of and accountability for accuracy of the GDP is the responsibility of programs and Colleges. Graduate education policy requires review and approval of the GDP at the graduate program level.

The Graduate School website [http://www.grad.umn.edu/index.htm](http://www.grad.umn.edu/index.htm) has the following resources available:

Graduate Degree Plan form
[<http://www.grad.umn.edu/students/forms/index.html>](http://www.grad.umn.edu/students/forms/index.html).

Tutorials for faculty and staff showing how to review the degree plan to meet policy compliance for:
- Doctoral students
- Master's students
- Post-Baccalaureate Certificates
[<http://www.grad.umn.edu/faculty-staff/index.html>](http://www.grad.umn.edu/faculty-staff/index.html)

ANNUAL EVALUATIONS
Annual progress toward the degree is evaluated against the expectations of the program that include coursework, assistantships, thesis research, productivity, timeliness in fulfilling requirements, and professional development. The annual review involves a meeting of the student, the advisor, and the advisory committee each spring semester. Students are required to meet with the advisory committee twice during the first year and at least once per year in the second and third years. Additional meetings may be scheduled as needed. Beginning in the fourth year and continuing until degree completion, Ph.D. students are required to meet once each semester with the committee. Lengthy presentations are to be avoided in favor of discussion.

The student is responsible for scheduling meetings in a timely manner. This can be challenging given the complex schedules and numerous responsibilities of faculty. It is advisable to determine the availability of the committee weeks or months in advance. Consulting the University Google calendar system or Doodle polling ([http://doodle.com/](http://doodle.com/)) are popular ways to accomplish the task. Should circumstances be such that it is not possible to convene the whole committee, a majority of the committee may suffice. Members who are unable to attend may be consulted separately. Eligibility for PBS summer fellowships requires that the annual review be completed and received by the program prior to the end of March.

The Annual Evaluation Form serves to document student progress. The first part of the form is to be completed by the students in preparation for the meeting. The remainder is to be completed by the advisory committee. All parties sign the copy that the student submits to the program office.

It is necessary to submit the annual evaluation form on time in order to maintain good standing in the program. The DGS notifies, in writing, students not achieving satisfactory progress of
deficiencies and actions required to address deficiencies within a specified time period. Failure to address deficiencies on time may result in withholding registration or termination from the program.

Effective Fall 2015, the annual evaluation for each student will be accessible on the google drive. The PBS coordinator has created a file for each student and will give access to the student, the student’s committee members and the DGS to view this document. This google form will be used for each year’s evaluation. The student will add to it each year and the advisor will also provide a summary of the student’s progress each year.

**PBS Graduate Student Annual Evaluation Form**

Annual submission of this form is required to maintain student status in PBS. Students complete the lead section and items 1-8 and the committee completes the remainder.

Name:  
GPA:  
Advisory Committee Members:  
Meeting Date:  
Year Entered Program:  
Expected Graduation Date:  

1. Ethics Requirement (2nd semester)  
2. Graduate Degree Plan (3rd semester)  
3. Written Preliminary Exam (4th semester)  
4. Oral Preliminary Exam (5th semester)  
5. Presentations in journal clubs (indicate names of journal clubs, dates and topics presented):

6. Awards (including grants & fellowships applied for in the past year and amounts received):

7. Meetings (talks or posters presented during the past year. Include the name of meeting, date, place of meeting, title, co-authors, and if invited):

8. Publications (if any in the past year, provide the full citation and indicate if submitted, in review, in press, or published):

*Annual Accomplishments and Goals for Upcoming Year.* Provide accomplishments and, if you did not attain the goals set in the previous year, a brief explanation of the circumstances. *(Also include in this section fellowships, grants, etc. applied for that you did not receive)*
Advisory Committee Evaluation
A brief statement drafted by the advisor or the chair of the committee on overall academic performance and progress should be recorded on this form. Statements are most helpful to students when they include constructive feedback on current progress as well as expectations, goals for the coming year, or needs for improvement.

Proposed funding sources for the next year (e.g. RA, TA, Fellowship, etc.)

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<th>Summer</th>
<th>Fall</th>
<th>Spring</th>
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<td>Account (if known)</td>
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Student’s Signature (can type)  Advisor’s Signature (can type)

Advisory committee Signatures:

____________________________
____________________________
____________________________
____________________________
____________________________

____________________________
Director of Graduate Studies Signature

Fourth Year and Beyond Committee Meetings

Please add these meetings to the bottom of the annual evaluation form. Include the following:

Date of Meeting:

Committee Members (list):

Student:
Prepare a summary (about 2 pages) listing your research objectives and indicate progress made towards objectives. Briefly describe any problems you may have encountered.

If you are writing your thesis, indicate the progress you have made on each section. Include in your summary a time-line for completion of degree requirements. This summary should be given to your advisory committee members and the PBS program office before the meeting.

Committee Members: The advisor will also put in the evaluation form a summary of the meeting that should indicate whether adequate progress is being made and the advice given by the committee members. Indicate whether student’s time-line for completion is feasible.
TEACHING EXPERIENCE
All Ph.D. students are required to participate in a teaching experience for one semester at a minimum of 25% effort or approximately ten hours per week. Either concurrently or prior to a teaching appointment, the student is required to enroll in Grad 8101: Teaching in Higher Education for a grade A-F. Students with an equivalent prior teaching experience may, upon recommendation of their advisor, petition the DGS to modify or waive the teaching experience requirement.

Upon establishing residency at the University of Minnesota, and preferably during the first semester, international students are required to take the Spoken English Test for Teaching Assistants (SETTA) test offered by the Center for Teaching and Learning. See http://www.isss.umn.edu/new/ISOP.html or call 612-625-3041 for more information. International students must pass the SETTA test with scores of 55-60 prior to holding a teaching assistantship position. Students who underperform on the SETTA may be required to take Grad 5102: Preparation for University Teaching for Nonnative English Speakers and/or Grad 5015: Practicum in University Teaching for Nonnative English Speakers. See also http://www1.umn.edu/ohr/teachlearn/index.html

PRELIMINARY WRITTEN EXAMINATION
During fall semester of the second year, all Ph.D. students are required to register for PBS 8901: Preparation of Research Proposals, a one-credit course focused on the preparation of a dissertation research proposal. This course will provide instruction on developing ideas, writing effective proposals, and facilitating peer evaluation. The course is intended to guide the preparation of a research proposal for the Preliminary Written Examination, which is submitted during the spring semester of the second year.

The Preliminary Written Examination shall consist of an original proposal written by the student. The proposal shall (1) set forth hypotheses, or state questions to be addressed and describe analyses to be conducted, (2) provide a critical review of the relevant literature underlying the hypotheses, questions or analyses, (3) state the significance of the problem or the need for the research, (4) outline specific goals, and (5) provide an effective experimental design to test hypotheses, analyze data, and interpret or discuss possible outcomes. The proposed research must be of sufficient depth and breadth for a Ph.D. dissertation, but does not need to be the student’s actual Ph.D. research plan. The total length of the proposal is limited to 15 pages of double-spaced 12-point type including figure legends and tables but excluding figures and references.

Students are expected to consult with their advisor, committee members, faculty, and fellow students when developing proposals for the Preliminary Written Examination. At the same time, the author of the exam must be the student alone. Students may not use material from research grant applications written by the advisor(s). Students should consult with their advisor throughout the period of proposal preparation, especially with regard to specific aims and experimental plan. The writing and ideas in the written examination, however, should be produced by the student. Advisors should read but not edit the proposals of their students prior to submission for the Preliminary Written Examination. The student and the committee settle on the ultimate direction of the dissertation research after the written exam.
In fields where National Science Foundation (NSF) Doctoral Dissertation Improvement Grants are available, the proposal may be organized in the format required by NSF. For students in other fields, the proposal may be organized like an NSF research proposal.

**Preliminary Written Examining Committee**

According to Graduate School policy, a minimum of four members is required, three representing PBS and one representing a minor field. The members of the advisory committee typically but not necessarily serve as the preliminary oral examination committee. Students or advisors may also assemble examining committees of more than four members at their discretion. Although the Graduate School allows advisors to serve as chair, the Program has decided that a chairperson other than the advisor is designated to administer the exam and the advisor serves as a non-voting member. The role of an advisor is to read and comment on the exam, and to assist the committee and the student in the event that revisions are required.

**Preliminary Written Examination Process**

After completion of PBS 8901: Preparation of Research Proposals, students should discuss the thesis proposal with the advisor and members of the committee. Revisions to the proposal based on these discussions are encouraged prior to submission of the exam. The exam should be submitted during March of the spring semester of the second year.

The student submits to the program office an electronic copy of the exam, a list of the committee members with email addresses and phone numbers and the name of the committee chairperson. The program office then communicates the exam and procedures to the committee.

Each committee member reviews the exam, generally during a two-week period, and communicates their evaluation and written comments to the chairperson. The chairperson is responsible for collating the individual reviews, writing a summary, and communicating the outcome of the exam to the student. The program office is copied on this correspondence. Exams are evaluated as (a) acceptable, (b) acceptable in principle but needing revision, or (c) unacceptable.

If a student’s committee wants/needs an extension on the student’s preliminary written exam, the advisory committee should meet to discuss the extension and forward their recommendation to the DGS for DGS approval. Deadlines are necessary to maintain timeliness to degree and approval is needed to ensure legitimacy of the requested extension.

a. Acceptable: If the majority of voting committee members find the proposal acceptable according to the exam criteria outlined above then the student passes the examination.

b. Acceptable in principle, revision required: If the majority of voting committee members find the proposal acceptable in principle but deficient in some respect(s) then revision and reevaluation of the proposal is required. Written comments from the committee and guidelines for revision are provided to the student by the chair and copied to the program office. It is recommended that the committee (including the advisor) meet with the student to discuss this outcome and expectations.
for revision. At the discretion of the committee, students may exceed the 15-page limit in the revised proposal. The student has one month from the date of receiving the evaluation to electronically submit a revised proposal to the program office unless a request for an extended deadline from the chair is approved by the DGS. The program office distributes the revised exam and exam guidelines to the committee. If the majority finds the revised proposal acceptable then the student passes the examination. If the majority finds the revised proposal unacceptable, see below.

c. Unacceptable: The proposal contains fundamental flaws that cannot be remedied by revision. If the majority of the committee finds the proposal unacceptable then the student fails the exam and does not continue in the Ph.D. program.

When an outcome of (a) or (c) is reached, the committee chair communicates the result to the program office in writing. The program coordinator reports the result as either pass or fail to Graduate Student Services and Progress using the online workflow. Students and advisors will receive an automatic notification. Students concerned about the result of the Written Preliminary Examination may petition the DGS.

PRELIMINARY ORAL EXAMINATION
The Preliminary Oral Examination is scheduled soon after passing the Preliminary Written Examination, preferably before the drop/add deadline of the fifth semester, and no later than the end of the fifth semester. According to Graduate School policy, a minimum of four faculty members is required for the preliminary oral examination, three representing the major field and one representing a minor field. Members of the advisory committee typically but not necessarily serve on the preliminary oral examination committee. Students or advisors may assemble committees of more than four members at their discretion. According to program policy, a chairperson other than the advisor is responsible for administering the exam.

Before scheduling the Preliminary Oral Examination, students must first complete the on-line workflow process form and enter their committee members’ names as well as identify who will be the chair of their exam. Advisors cannot chair the exam.

Once the committee is approved, the student must then schedule their prelim exam on the on-line workflow process form. http://www.grad.umn.edu/current-students-forms/formsdoctoral

The Preliminary Oral Examination is designed to evaluate competency in areas of specialization. At the discretion of the committee, it may also include broader themes intersecting with the plant sciences. A thesis research proposal as revised following the Written Examination may be presented at the Preliminary Oral Examination with the consent of the committee. The committee may choose to change the format of the exam at any time prior to or during the exam, as it deems necessary, to most effectively evaluate competency in the plant sciences.

Results of the Preliminary Oral Examination and procedures:

a. Passed the examination without reservations.
b. Passed the examination with reservations. NOTE: Within one week of the examination, the committee chair must send a letter to both the Graduate Student Services and Progress Office (gssp@umn.edu) and the student and the PBS program that clearly stipulates the reservations and
steps required to remove them. Once the students fulfill the reservations, the committee chair must email the Graduate Student Services Offices (gssp@umn.edu), the student and the PBS program office indicating that the student has fulfilled his/her reservations. Please include student’s ID number with this email.

c. Failed the Examination. NOTE: Each committee member must indicate whether a retake is approved. With the unanimous consent of the examining committee one retake is permitted.

The chair of your Preliminary Oral Examination will be mailed the examination form. The signed Preliminary Oral Examination Form must be signed by all committee members and sent over to the Graduate Student Services and Progress Office located at 160 Williamson Hall, 231 Pillsbury Drive SE, Minneapolis, MN 55455 Phone: 612.625.0168 email: gsdoc@umn.edu. http://www.grad.umn.edu/students/forms/doctoral/index.html submit Preliminary Oral Examination committee members and schedule Preliminary Oral Examination

Candidacy for the degree is established after the Preliminary Oral Examination has been passed.

DISSERTATION PROGRESS
A goal of the PBS program is that Ph.D. students complete the degree within five years. The program has a responsibility to ensure that students meet regularly with their advisory committee to facilitate timely completion of research and thesis writing. During the first three years, students are required to meet with the committee at least once each year for annual evaluation. After completing three years in the Ph.D. program, students are required to meet with the advisory committee at least once each semester.

During the fall semester of the fourth year and each fall thereafter, students are expected to schedule an advisory committee meeting at which progress toward the dissertation is discussed. A summary of up to 2 pages should be prepared in advance of the meeting. This brief outline should summarize progress and goals for completion of each section or chapter of the dissertation. A timeline for achieving goals should be included as well. At the meeting, committee members are expected to review the outline and provide input with the aim of helping the student toward timely completion of the degree. A brief written statement from the advisor summarizing the results of the meeting should be attached to a copy of the outline and submitted to the program office. Failure to arrange committee meetings each semester may result in the DGS placing a hold on student registration. In spring semesters of the fourth year and beyond, dissertation progress should be the focus and the required annual evaluation form is used to document the spring meetings.

DISSERTATION PREPARATION
Students are expected to consult with the advisor and advisory committee about the general form of the dissertation. Manuscripts based on any part of the thesis research should be provided to all committee members for a period of review prior to submission for peer-reviewed publication. This helps avoid revision requests or delays in approval for defense from Final Oral Examination committee members. Typically, the student and the advisor work closely at this stage to determine when chapters are ready for review by the committee. Thesis chapters and manuscripts are often
circulated for comment one at a time whereas a complete draft of the thesis is required to set the
date of the Final Oral Examination.

Instructions from the Graduate School on the required format of the dissertation are available at
http://www.grad.umn.edu/students/forms/doctoral/index.html and

**DEGREE COMPLETION**

Thesis Reviewers, typically the members of the advisory committee, are responsible for gauging
whether the dissertation is acceptable for defense. Students are required to submit to the reviewers
a complete draft of the entire dissertation at least two weeks prior to the proposed date of the
Final Oral Examination. It is recommended to consult closely with the advisor prior to seeking a
defense date.

**Graduation packet delivery process**

Graduate students are responsible for downloading their own graduation packet materials from
the Graduate School website. Graduate Student Services & Progress (GSSP) will remain available
for assistance if needed, but will no longer print and send a requested packet to a student or
program. http://www.grad.umn.edu/current-students-graduate-student-services-progress/doctoral

This will not only allow students to get their information faster, but their personal information
(e.g., name, address, degree sought) will be auto-populated in the form. After a student has
requested her/his packet and the system has verified completion of eligibility milestones (e.g.
active status, approved degree plan, approved final committee), the student will be prompted to
download appropriate materials.

All graduation packet materials have been redesigned to reflect this process change. This
includes:

- Exam forms and Reviewers Report forms
- Graduation checklists
- Graduate Application for Degree
- Formatting & Submission Guidelines

**FINAL ORAL EXAMINATION**

Before scheduling the Final Oral Examination, students must complete the on-line workflow form to
assign and/or update their Final Oral Exam committee members. Once the committee is approved, they
will then go to the on-line workflow and schedule their Final Examination as soon as a date is set, but *no
later than one week* prior to the examination. Once the student schedules the exam online, a confirmation
email will be sent to the student's UMN email account.

http://www.grad.umn.edu/current-students-forms/formsdoctoral

The final exam includes a public seminar presentation of the thesis and a separate meeting of the
examining committee with the student. Students are responsible for scheduling the time and place
of the thesis seminar with the PBS coordinator. The final examination by the committee is
typically but not necessarily scheduled to immediately follow the public seminar. The oral
examination includes a critical evaluation of the dissertation, a discussion of final revisions to the thesis, if necessary, and general discussion of future plans.

Final Exam Flyer – students must provide the program coordinator (preferably two weeks before the seminar and exam will take place) with pertinent information to include on a flyer that will be posted and sent to other graduate programs. Please provide the date of exam, time, location, name of advisor(s) and title of your talk.

Please note that the student is responsible for scheduling and confirming the time and place of the examination with all committee members and for following their program’s internal scheduling procedures. Questions regarding cancelling or rescheduling an exam should be sent to gssp@umn.edu.

Last minutes changes to a student’s examination committee (extreme situation). Any changes in the make-up of the examining committee must be reported to GSSP immediately and approved prior to the examination. To find information regarding last minute changes to a committee if the exam cannot be rescheduled, see http://www.grad.umn.edu/students/examiningcommitteesnew/index.html.

The chair of the committee will need to get DGS and then College approval for the change. The student then must go on line to update their committee member on the graduate school’s web site.

Examination Requirements
The following requirements must be met with GSSP before the Final Oral Examination can be authorized:
1. If the Preliminary Oral Examination was passed with reservations, a letter notifying the student and GSSP that those reservations have been removed must be on file.
2. The student must have an approved Doctoral Final Examination Committee on record.
3. The Reviewers Report form must be on file with GSSP before the examination.
   Note: Students may schedule their exam before submitting the Reviewers Report form.
4. All coursework on the doctoral Graduate Degree Plan must be complete.
5. The student must hold active status at the time of the examination.
6. The student must have registered for 24 semester doctoral thesis credits (8888).

Final electronic copies of the dissertation are submitted to the PBS program office and the Graduate School at the same time, see http://www.grad.umn.edu/students/forms/doctoral/index.html.

COMMENCEMENT
The College of Food, Agricultural and Natural Resource Sciences, College of Science and Engineering, College of Biological Sciences, College of Liberal Arts, and the Medical School Basic Science departments hold a joint commencement ceremony for graduate students in April of each year. The ceremony is open to graduates who have completed or nearly completed their degree. Students with pending degrees may also participate if they meet their program’s criteria for commencement attendance. Attending the commencement ceremony does not imply that you have officially graduated. This is a separate process from submitting the Graduate School
Application for Degree. Please inform the Program Coordinator if you will be attending the commencement ceremony.

**TERMINATION**

Upon graduation, students should notify the program office and the Director of Graduate Studies of the effective date of termination of student status. Students who anticipate withdrawal from the program should contact the DGS and provide written notice to the DGS in the event that a decision to withdraw has been reached. The notice should indicate the effective date of termination. A student may be liable for substantial tuition and other fees in the case of a mid-semester termination.

**REQUIREMENTS FOR THE MASTERS OF SCIENCE**

The PBS program is primarily focused on the Ph.D. However options for a Masters of Science with a thesis (Plan A) or without a thesis (Plan B) are also available. Master’s students are expected to graduate within two years from the date of enrollment whereas University policy requires completion of the Master’s degree in no more than five years from the date of enrollment. Students intending to pursue a Master’s degree from the outset are expected to identify an advisor and a research topic at the first opportunity. Under special circumstances, students enrolled in the Ph.D. track may switch to the Master’s track. The approval of the advisor, advisory committee, and DGS is required in such cases. Students pursuing the Master's degree must fulfill overall Graduate School requirements, described at [http://grad.umn.edu/deans-office/policies_goverance/index.html](http://grad.umn.edu/deans-office/policies_goverance/index.html)

Master’s degree completion procedures in general are summarized at [http://grad.umn.edu/students/masters/index.html](http://grad.umn.edu/students/masters/index.html)

Requirements, policies, and procedures of the Master’s in PBS are the same as those outlined above for the Ph.D. except where described below. For example, teaching experience is required of Master’s students as with the Ph.D. but the minimum size of the Advisory Committee is less than in the case of the Ph.D. Master’s students are served by a three-member Advisory Committee including two faculty representing Plant Biological Sciences and one faculty representing another field. A research proposal is required of all Master’s student but is not submitted as a written preliminary examination. Instead, the student develops a proposal of more limited scope than would be expected for a Ph.D. and either pursues a thesis in this direction (Plan A) or not (Plan B). A Final Examination is required in either case and the membership of the Final Examination Committee is typically but not necessarily the same as the Advisory Committee.

The DGS is consulted in the event that a Master’s student plans to pursue a graduate minor in a program other than Plant Biological Sciences. Master’s students majoring in other graduate programs may also obtain a minor in Plant Biological Sciences by completing 6 credits of supporting coursework (Table 1).
MASTERS OF SCIENCE PLAN A WITH THESIS
Students are expected to complete the Plan A Master’s degree in four to five semesters while maintaining a minimum GPA of 3.0. Requirements include 10 Master’s thesis credits and 20 credits of coursework. PBS core courses are included among the 20 credits and with the remainder elected by the student from PBS supporting courses (see Table 1). The PBS core courses required of Master’s students are identical to the Ph.D. except that PBS 8901 is optional, students take only one semester of PBS 8900 Section 003, and students need not take PBS 8994 or PBS 8888. In place of the latter two courses, Master’s students should enroll in PBS 8777 for thesis credits at any time. In the case of Ph.D. students switching to Master’s Plan A, PBS 8888 may be substituted for PBS 8777.

Plan A Master’s students are required to submit a Graduate Degree Plan by the end of the second semester. Approval of a research proposal by the advisory committee is also required of Plan A Master’s students prior to conducting major components of research. Unlike the Written Preliminary Examination for Ph.D. students, however, the procedure for approval of Plan A Master’s thesis proposals is informal. Students are expected to consult early and often with the advisor and advisory committee so that the scope of research is appropriate and progress is timely.

Candidates for the Plan A Master’s degree are required to submit a thesis to the Final Examination Committee and to present a public research seminar.

MASTERS OF SCIENCE PLAN B WITHOUT THESIS
Students are expected to complete the Plan B Master’s degree in four semesters while maintaining a minimum GPA of 3.0. Thirty credits of coursework are required including PBS core courses and others elected by the student from PBS supporting courses (see Table 1). The required core courses are identical to the Ph.D. except that PBS 8901 is optional and students take only one semester of PBS 8900 Section 003 but do not take PBS 8994 or PBS 8888. Plan B Master’s students are required to submit a Graduate Degree Plan by the end of the second semester.

Although thesis research is not required for Plan B, candidates are required to develop a research proposal paper. Students are expected to consult early and often with the advisor and advisory committee so that the scope of proposal is appropriate. The proposal should identify a research problem, survey literature on the topic, describe methods or experimental design, and discuss the significance of predicted or potential findings in relation to the problem.

A Final Examination is held upon completion of coursework and submission of the proposal paper to the committee. Students may choose to present a public seminar on the research proposal as part of the final exam.

PART TWO: PROGRAM ADMINISTRATION

MISSION
The Plant Biological Sciences (PBS) Graduate Program is a multidisciplinary, interdepartmental, and cross-collegiate program offering advanced degrees across the full spectrum of plant biological science with a primary emphasis on Ph.D. training. The program is designed to provide
graduate students with (1) an excellent overall educational experience, (2) the opportunity to conduct cutting-edge, independent research in the plant sciences, (3) professional development, and (4) exposure to the international scientific community through seminars, colloquia and professional meetings. The majority of students pursue the Ph. D. degree directly without a Master’s degree. The remainder has received a Master’s degree from this or another institution prior to pursuing the Ph.D. and students rarely pursue terminal M.S. degrees.

The mission of PBS is to position graduate students at the leading edge in the plant biological sciences and to provide outstanding training for careers in academia, industry, and public service. The program draws strength from an emphasis on basic research and the integration of conceptual and technical approaches across all levels of biology, from molecules to ecosystems. Tremendous advances in genomics and computation during the past decade have invigorated our disciplines. University initiatives and strategic investments have built an internationally recognized and highly competitive plant science core.

Current research interests include genetics, genomics, metabolomics, proteomics, cellular signal transduction, stress response, morphogenesis, molecular evolution, phylogenetics, evolutionary ecology, community ecology, ecosystem science, climate change, and systems biology. In bringing such disciplinary breadth to the study of plant and fungi, the PBS program provides an identity and a framework for the new, integrative biology of the 21st century.

GOVERNANCE
Members of the PBS faculty serve the positions of Director of Graduate Studies, Associate Director of Graduate Studies, and the Steering Committee for terms of two years each. The ADGS typically advances to the position of DGS after two years. Candidates are identified by the Head of the Department of Plant Biology in consultation with program faculty, Heads of affiliated departments, or by an ad hoc nominating committee at the Head's designation. The appointment of faculty who agree to serve as ADGS and/or DGS is subject to a majority vote of the graduate faculty. This majority is defined as a simple majority of those voting. Faculty appointments to the Steering Committee are subject to a majority vote of the graduate faculty alone. Other PBS committees including curriculum, financial aid, colloquium, and ad hoc committees are appointed by the DGS. Committee membership is expected to maintain disciplinary diversity and terms are staggered to maintain a level of experience on each committee.

The PBS program recognizes the evolving nature of graduate education and the need to adapt to changing circumstances. Petitions to change procedures, policies, and guidelines described in the Handbook are reviewed by the Steering Committee. Upon the recommendation of the Steering Committee, proposed changes may be circulated among the program faculty. Members of the faculty may request a majority vote of the full faculty on any proposed change. This majority is defined as a simple majority of those voting on a given issue. Voting may occur electronically by email or during a meeting of the graduate faculty. Should no faculty member request a vote, proposals may be enacted by unanimous consent of the Steering Committee. Program changes, including matters of compliance with University policy, are enacted by notifying faculty and students electronically and by updating the program handbook.
Student Involvement
Graduate student representatives participate in PBS governance. Phytograds, an independent student organization composed of PBS students, may nominate representatives to serve on the steering, curriculum, and colloquium committees. The representative to the steering committee is typically the Phytograd president. The colloquium committee and the organization of the annual PBS retreat each require the service of two students.

ORGANIZATION

Department of Plant Biology
The Department of Plant Biology has administrative responsibility for the Plant Biological Sciences Graduate Program. The Department provides a Program Coordinator to assist with handling applications, communicating with current students and faculty, and administering budgets from internal departmental or collegiate funds, or from external grants and gifts.

Director of Graduate Studies
The Director of Graduate Studies (DGS) is a member of the Plant Biological Sciences graduate faculty who was elected as the previous Associate Director of Graduate Studies (see below). The primary administrative responsibility for the conduct of program affairs is vested in the DGS. The Graduate School policy on the DGS appointment, roles, and responsibilities can be found at http://www.policy.umn.edu/Policies/Education/Education/APPOINTDGS.html. The DGS consults with the Associate DGS and the Steering Committee on matters that require a broad base of input from the various areas of specialization within the program.

CBS Graduate Program Leadership: Responsibilities and Appointment Guidelines for Director of Graduate Studies

The College of Biological Sciences aims to maintain and cultivate the excellence of its graduate programs. A partnership among the CBS Dean, Associate Deans for Research and Graduate Education, the Directors of Graduate Programs, and Department Heads comprise the leadership of each program.

The DGS is a critical role that influences the future of the program. Primary responsibilities:

- Provide academic guidance and oversight of existing programs.
- Provide management of academic operations including coordination of funding, aid, and fellowship awards related activities.
- Ensure responsible mentorship and student advising.
- Resolve conflicts between students and advisors.
- Address and report on incidents of academic dishonesty and sexual harassment.
- Report on the financial resources allocated to the program.
- Monitor and develop program metrics, including student success and placement.
- Develop strategies to increase the quality of applicant pools.
- Develop strategies to increase number of students of color in applicant pools.

The DGS consults with the Department Head and Associate Dean(s) on the following matters:

- Determination of the size of the recruitment class, in order to prevent cost overruns.
• Management and evaluation of financial resources.
• Program review.
• Curricular reviews.
• Student/advisor conflicts.
• Academic dishonesty and sexual harassment concerns.
• Development of new courses or course requirements.
• Efforts to reform the graduate program.

**Associate Director of Graduate Studies**
The Associate Director of Graduate Studies (ADGS) is a member of the Plant Biological Sciences graduate faculty and is elected by a majority of the graduate faculty. The Plant Biology Department Head then requests approval from the Associate deans in the College of Biological Sciences office for the incoming ADGS. The individual serves a four-year term; the first two years as Associate DGS followed by a two-year term as DGS. The primary responsibility of the Associate DGS is to work with the Admissions committee to recruit students, assist with admissions decisions, and to nominate students for fellowships. At their discretion, the DGS and Associate DGS may divide other responsibilities of the program. A faculty member may not serve two consecutive four-year terms.

**Steering Committee**
The Steering Committee consists of the DGS, the Associate DGS, four PBS graduate faculty representing disciplinary areas, the Program Assistant, and a Graduate Student Representative elected by the graduate students. The Program Coordinator and the Graduate Student Representative serve as *ex officio* members and do not vote. The program strives to represent diverse field in the Plant Biological Sciences by appointing faculty to committees in each of four disciplinary areas: (i) Genetics, Genomics, and Computational Biology, (ii) Cellular, Molecular, and Developmental Biology, (iii) Ecology, Evolution, and Phylogenetics, and (iv) Biochemistry, Physiology, and Systems Biology.

Prior to an election of faculty members of the committee, nominations are solicited from the entire graduate program faculty for each of the four areas. The two faculty members receiving the most nominations in each area are asked to stand for election and the member in each area with the most votes is elected to a two-year term. Typically two new Steering Committee members are elected each year so that only half the committee is new each year. The Steering Committee consults with and advises the DGS and Associate DGS on graduate program procedures and policies, votes on nominations to the Plant Biological Sciences program graduate faculty, periodically reviews faculty participation in the program, and assists in various aspects of the program as requested.

**Admissions Committee**
The Admissions Committee consists of three to four faculty members appointed by the DGS to represent the broad spectrum of the graduate program. The Associate DGS serves as an *ex officio* member. The Admissions Committee works closely with the Program Coordinator in maintaining new and current application files and is responsible for their prompt initial review when complete (application for admission to The Graduate School, personal statement, three letters of recommendation, transcripts, GRE score, TOEFL score [if required], statement of goals and
experience). The applications are evaluated according to criteria established by the Plant Biological Sciences Graduate Program.

The Associate Director of Graduate Studies works closely with this committee to identify high quality applications for further consideration by the graduate faculty. The Committee prepares a brief summary of each qualified applicant's record and interests, which is then distributed by e-mail to all program faculty members to determine potential advisors and/or RA support. Applicants for whom potential advisors are identified, based on a match of applicants and faculty research interests, will be offered Teaching Assistantships, Research Assistantships or possibly Fellowships from external sources as available. Only these applicants are formally recommended for admission into the graduate program. Admitted students are sent a letter from the DGS and appropriate department with the details of their financial offer. Except for unusual circumstances, all admitted PhD. students receive a half-time RA/TA or an equivalent fellowship during their first academic year.

**Curriculum Committee**
The Curriculum Committee consists of four faculty members appointed by the DGS to represent the broad spectrum of the curriculum within the graduate program. One or more graduate students participating on this committee will be elected by members of the Phytograd Club. The Curriculum Committee has responsibility for any necessary review of program courses as well as the overall curriculum. The committee periodically evaluates whether the courses offered effectively facilitate the passing of the preliminary written and oral exams and preparing students for a career in plant biology.

**Financial Aid Committee**
The Financial Aid Committee is responsible for distribution of program funds for student standard and exceptional travel grants and PBS summer fellowships. The DGS may ask the committee to select nominees for Doctoral Dissertation, CBS Excellence, Phinney, and Hamm Fellowships as well as other awards. The committee may be asked to help identify external funding possibilities such as training grants and to help prepare applications for these funds.

**Colloquium Committee**
The Colloquium Committee consists of three faculty members appointed by the DGS and one to two graduate students elected by the Phytograd Club. The committee is responsible for organizing a weekly seminar series. The series provides for invited presentations by outside speakers, program graduate faculty, and graduate students.

**Colloquium Committee Responsibilities:**
- the scientific content of the seminar program, with input on topics from the PBS community. Note that in some cases, a “mini-series” or topical emphasis might be desirable, at the discretion of the committee.
- oversees the list of speakers to ensure it includes a balance of topics representing the full spectrum of plant biological sciences.
- solicits faculty and graduate students to identify and host speakers.
• provides guidance and support for students involved in (one student-invited speaker each semester).
• formally invites the speaker (or asks the host to invite), and obtains a seminar title and a recent publication for distribution to graduate discussion groups.
• informs the Plant Biology Principle Office Specialist of the specifics of the seminar (date, name of speaker, institution, email address, phone number and title of talk).

DATE

Dear (NAME):

RE: PBS Colloquium Host Protocol/Procedures

Thank you for agreeing to host seminar speaker (NAME) this (Fall/Spring) Semester on (DATE). Below is important information about how things are organized and what your responsibilities are as host.

General Info
• Seminars are held every Fall and Spring semester. They are on Tuesdays, from 3:30pm–4:30pm and will be held in 335 Borlaug Hall (unless otherwise noted).
• lodging: (suggestion) in order to save costs to the PBS program and enable the colloquium committee to invite more out of town speakers, we are suggesting that faculty house the speaker in their home if possible. Otherwise, speakers will be housed at the Radisson Hotel, 651-636-4567 2540 North Cleveland Avenue, Roseville, MN 55113
• One to two nights stay; any additional nights will be the responsibility of the speaker.

Meals
• Breakfast and dinner on 2 days of stay, and additional breakfast on 3rd day, if warranted.
• Lunch - Provided by PBS program (student lunch).
• Group Dinner – the program will pay for one group dinner. In lieu of the group dinner, you are encouraged to host an informal reception for the speakers at your home where more people can be invited.
• The PBS policy is the program will pay up to $150 for dinner for all attendees. Any dollar amount greater than $150 for a group must be covered by the persons attending the dinner. Alcohol will not be reimbursed.
• NOTE: If you pay for any meals on your University of Minnesota P-card, please let Megan Clark know as she is tracking all colloquium charges.
• Receipts – please provide ITEMIZED receipts for all meals and include names of participants.

Host Responsibilities include:
• Assign a co-host – generally a PBS grad student and inform Megan with the name.
• Send to the Principal Office and Administrative Specialist (POAS - Megan Clark) the itinerary when completed.
• Provide airport pick up/return transportation arrangements.
• Ensure that the speaker meets with the POAS in 250 BioSci to sign the necessary forms to process honorarium ($100 if applicable), and any related expenses at 1:00 pm immediately following the student/speaker lunch.
• Ensure that itemized receipts for travel costs and meals are handed in to the POAS.
• If staying at a hotel, ensure that meals are not charged to the speaker’s room.
• Make arrangements for meals (see allowances below) for the speaker during the visit. Note that the graduate student lunch is organized by the POAS.
• Accompany speaker to seminar room, help him/her set up for their talk and introduce at seminar.
• Work with the co-host to arrange meetings with speakers. Encourage hour-long meetings with entire labs or other mechanisms to ensure that appropriate graduate students and postdocs can meet with the speaker.
• Reception after seminar: If you wish to have a reception immediately following the seminar, the host will provide the food, etc. There will be a small budget for this expense; yet to be determined.

Support Staff Responsibilities:
• Retrieve all needed information for the seminar from the guest speaker.
• Plan, schedule and post itinerary.
• Assist speaker with arranging transportation to Minnesota; if requested.
• Make hotel arrangements, if needed.
• Arrange IT needs for speaker.
• Organize graduate student luncheon.
• Provide refreshments for seminar.
• Submit reimbursements for speaker and host.

Reimbursements
Restriction, by University Policy: Alcohol expenses will not be reimbursed (http://policy.umn.edu/Policies/Finance/Travel/TRAVEL_APPI.html)

All itemized receipts must be submitted along with the signed reimbursement form as soon as possible and not later than two weeks of incurring the expense. The names of everyone in attendance is required for justification.
http://policy.umn.edu/forms/formresults.cfm?ctg=FI (go to Employee Expense Worksheet)

ANNUAL RETREAT
The PBS program holds an annual retreat, usually at the end of the Spring Term where all PBS students and faculty are expected to attend. The retreat provides opportunities for interactions among students and faculty, discussion of program issues, and to highlight student research. Students organize the retreat with the assistance of a faculty member and the program coordinator.
GRADUATE FACULTY

Membership
Members of the graduate faculty for Plant Biological Sciences Graduate Program represent a broad array of administrative units within the University of Minnesota. Eligibility is based on excellence in the plant sciences and University Policy on graduate faculty membership: http://policy.umn.edu/Policies/Education/Education/APPOINTGRADCOMM.html

Application Procedure
Prospective faculty members send a curriculum vitae and a letter to the DGS expressing a commitment to participate in the program, acknowledging the responsibilities of graduate faculty, and choosing among PBS disciplinary areas. Program faculty may identify with one or more of the following four areas: (i) Genetics, Genomics, and Computational Biology, (ii) Cellular, Molecular, and Developmental Biology, (iii) Ecology, Evolution, and Phylogenetics, and (iv) Biochemistry, Physiology, and Systems Biology.

The DGS circulates these materials and a ballot among the Steering Committee, which arrives at a decision on behalf of the program faculty. A simple majority of Steering Committee members must favor the nomination. University faculty members seeking to join the PBS program are encouraged to present a research seminar in the PBS Colloquium. The CBS Deans of Research and Graduate Education base their approval of graduate faculty appointments and Ph.D. advisor assignments on the recommendation of the Steering Committee.

Participation
Faculty members are expected to participate in the program annually through activity in at least one or more of the following activities:

• Participate in program governance by serving on program and college committees
• Teach courses for graduate credit within the graduate program
• Host rotations for first year students
• Serve on PBS preliminary examination committees
• Serve on PBS final examination committees
• Advise PBS graduate students
• Serve as PBS Director of Graduate Studies or Associate Director of Graduate Studies

The Steering Committee may periodically review faculty participation. Appointments of faculty who do not contribute to the program over a period of two years may, at the discretion of the Steering Committee, be asked to renew their commitment to participate in some capacity or withdraw from the program.

Advising
The PBS program invests significant resources in every student who is admitted and students devote substantial time pursuing their educational goals. Positive advising and mentoring of graduate students fosters mutually beneficial relationships, leading to success for individual students and enhancing the reputation of the program. Only a collective effort by the PBS graduate faculty can provide exemplary advising and mentoring. The program aims to avoid graduate student attrition, promote a higher rate of Ph.D. completion, and conserve scarce
resources. The Work Group on Advising and Mentoring, together with the Student Conflict Resolution Center has prepared helpful information on the best and worst practices for graduate advising. Faculty members are strongly encouraged to consult this resource -


Although the relationship of advisor and student is different from that of employer and employee, resources provided by the University Office of Human Resources also provide helpful guidelines http://www1.umn.edu/ohr/toolkit/performance/reviews/preparing/index.html

The primary role of PBS faculty is to serve PBS graduate students. Students are best served when advisors provide authentic evaluations that aim for reasonable goals and recognize achievement. Guidelines for conducting evaluation meetings from University Office of Human Resources can be found at http://www1.umn.edu/ohr/toolkit/performance/reviews/meeting/index.html.

Requirements for faculty employing students as research assistants and teaching assistants are found at http://www.policy.umn.edu/Policies/hr/Hiring/GRADSTUDENTEMPLOYMENT.html.

Faculty Meetings
The program faculty meets once each semester. Faculty members are expected to attend the annual program retreat in May. Additional meetings may be called as needed.

PART THREE: GENERAL INFORMATION

INTRODUCTION
This section of the handbook describes additional policies, services, contacts, and sources of information. Given that information is subject to change without notice, users of the handbook are encouraged to consult sources directly for the latest information.

DEPARMENTAL RESOURCES FOR STUDENTS
Space & Keys
Incoming students are assigned a temporary office space in the Biological Sciences Center until a faculty advisor is identified. Once an advisor is identified, students are expected to move from the temporary office to an office provided by the advisor. Keys are issued with the approval of the program coordinator or advisor upon completion of a key authorization form. After hours card access to the Biological Sciences Building is authorized upon completion of a building card access form. These forms require signatures and are available in the Plant Biology office.

Photocopying
The Plant Biology Department does not allow personal copies. Copy machines and services are available in university libraries and in Student Centers on both campuses.

Mail
Each student is assigned a mailbox in the Plant Biology main office located in room 250
Biological Sciences Center. Students will receive program announcements in these mailboxes. Students located in the Biological Sciences Center are encouraged to use the departmental address for their professional correspondence. Students located in other buildings or departments may consult the appropriate office staff to make alternative arrangements.

FUNDING OPPORTUNITIES FOR STUDENTS

The PBS program provides special funding opportunities for students (subject to budgetary availability) including standard travel grants, exceptional travel grants, and summer fellowships. Applications are submitted to the Program Coordinator in 256 Biological Sciences Center. The PBS Financial Aid Committee makes final award decisions.

PBS Standard Travel Grants
Students are eligible to receive one PBS standard travel grant per calendar year. Funded amounts are subject to availability of program funds. The calendar year starts September 1 and ends August 31. The application form is attached below. A call for travel request applications will be sent each year by the Program Coordinator; most likely requests will be in September and/or October and January and/or February.

Requests may be awarded in support of travel to professional meetings or workshops and laboratories providing new experiences and collaborative opportunities including international experiences. Travel grants for professional meetings require that the student present either a talk or a poster. Exceptions may be granted in the case of first year students.

PBS Standard Travel Grant Application

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<td>Advisor:</td>
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<td>Advisor’s Signature:</td>
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<td>Presentation (check box if applicable):</td>
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Additional Funding Source(s) required:

Total Amount Requested

PBS Exceptional Travel Grants – offered when funding is available
Applications for exceptional travel opportunities when program funds are available are due on 15 December each year. Applications after this date may be considered at the discretion of the Financial Aid committee on a rolling basis according to available funds. All PBS students in good academic standing and making satisfactory progress toward the degree are eligible for this competitive award once during their graduate career. These awards support advanced training in the form of courses, workshops, or other exceptional educational and research opportunities not easily obtainable in the absence of such support.

In the past, exceptional travel grants have funded trips to attend advanced training courses such as Molecular techniques in plant science (http://meetings.cshl.edu/courses/c-plan08.shtml), Organization for Tropical Studies field courses (http://www.ots.ac.cr/en/education/courses.shtml), the Welcome Trust course in Functional Genomics and Systems Biology (http://www.wellcome.ac.uk/doc_WTX026850.html), those at the National High Magnetic Field Laboratory (NHMFL; http://www.magnet.fsu.edu/), and advanced studies through the Long-Term Ecological Research Network (http://www.lternet.edu/) or the William R. Wiley Environmental Molecular Sciences Laboratory of the DOE-Battelle Pacific Northwest National Lab (http://www.pnl.gov/).
Applications include:
1. A letter from the student of up to two single-spaced pages describing research progress and career goals.
2. A copy of the most recent annual evaluation as approved by the advisory committee.
3. A letter from the advisor supporting the request that may be submitted separately.
4. A completed budget form.

PBS Exceptional Travel Grant Budget

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Additional Funding Source(s):

Total Amount Requested

PBS Summer Fellowship
The purpose of the PBS Summer Fellowship is to provide support for summer research or training opportunities of PBS graduate students. Because available funds may not cover all requests, a selection process is described. The annual application deadline is March 30.

Eligibility:
- All PBS students who have been in the program for fewer than six years may apply.
- Students making satisfactory progress towards their degree as indicated in the annual evaluation, also annually due on March 30.
- Requests for summer support in the 6th year for dissertation writing will be considered at lower priority.

Application Process:
Applicants submit:
• A one-page letter briefly stating summer research goals, outlining a plan for achieving goals, and how this activity will contribute to completion of the degree. Also indicate other sources of summer funding including those applied for and any which may be available through the advisor.
• A two page curriculum vitae including your educational history, employment, awards, scholarships, publications, and scientific presentations.
• The annual evaluation as approved by the advisory committee.

Advisors submit:
• A letter evaluating the student’s teaching and research activities and progress toward the degree. This letter should also discuss financial need.

Application materials are submitted to the PBS Program Coordinator in 256 Biosci Center.

Selection process:
• The PBS Financial Aid Committee reviews applications and makes funding decisions by the middle of April.
• Awards will be based on demonstrated excellence in research and on demonstrated financial need.
• Priority will be given to applicants who have not previously received full summer fellowship support.

Awards will be processed in June in the form of a one-time scholarship. As such, there are no taxes withheld from these awards.

GRADUATE STUDENT APPOINTMENTS
Graduate students may hold appointments including Teaching Assistantships (TAs), Research Assistantships (RAs), or Graduate Fellowships. The duration, duties, and details of the appointment are described in a letter of appointment provided by the appointing unit. Students are generally appointed to Teaching Assistantships and Research Assistantships. The level of effort is 50% meaning that the appointment requires averages 20 hours of activity per week over the term of the appointment. General information is available at http://policy.umn.edu/categories/hr/policy/GradStudentEmployment_pol.cfm.

Research Assistantships and Fellowships
Research Assistantships are mostly associated with grants and awards to faculty whereas academic departments are responsible for teaching assistantships. Fellowships and scholarships offer students greater independence. Students are encouraged to apply for competitive fellowships such as the National Science Foundation Graduate Research Fellowships. Fellowships and scholarships are also available through the Graduate School and the College of Biological Sciences. Doctoral Dissertation Fellowships from the Graduate School support students in the final year of dissertation writing.

Teaching Assistantships
The program has typically honored all requests for TA positions from students in good standing. The PBS program coordinator works with academic departments to identify TA opportunities and
fulfill student requests for assistantships. Although PBS strives to place all students in suitable appointments, it may not always be possible to award every request. Students with less TA experience may be given priority over students with more experience. Regardless of TA experience, requests from students beyond their 6th year of study are of lowest priority.

TA obligations begin before the first day of class and TAs must be available for meetings with instructors before the start of the term. The Graduate School defines a 50% appointment as an average of 20 hours per week over the entire period of the appointment, which varies from 19.4-19.6 weeks, depending on the particular semester. Thus, TAs and RAs are paid for about a month more than the length of the semester itself. If we use an average appointment period of 19.5 weeks, a graduate assistant on a 50% appointment is expected to put in about 390 hours of work over that period, while a 25% appointment represents 195 hours of work. Instructors can ask TAs to help with course preparation, grading of final exams, and other tasks that are related to the course but fall outside the specific dates of instruction for the semester, as long as the total number of hours worked by the TA during the 19.5 week appointment period does not exceed the number expected for the type of appointment. Plant Biology has always taken into account the specific responsibilities and tasks associated with individual courses, and thus the contact hours for TAs holding 50% appointments in different courses may differ considerably because other duties associated with the courses also vary considerably.

**Payroll**

University employees (including graduate student employees) are paid on a delayed biweekly payroll system. Pay periods are 2 weeks long, beginning on a Monday and ending on Sunday, 14 days later. To authorize automatic deposit go to [http://www.onestop.umn.edu](http://www.onestop.umn.edu) and choose the “Direct Deposit” link. Pay statements are available online at “MyU” and the HRSS website ([http://hrss.umn.edu](http://hrss.umn.edu)) two days before payday.

**Student Employment Rights and Responsibilities**

Graduate students are expected to honor the terms of employment. Graduate assistants also have fundamental rights to fairness and due process regarding appointment problems without prejudice to other rights and/or privileges. The University has a formal procedure for notifying graduate assistants of inadequate performance that may lead to termination of an appointment. Students receiving an unsatisfactory performance evaluation are encouraged to notify the program office at the earliest indication. See [http://policy.umn.edu/groups/hr/documents/procedure/gradstudentemployment_proc2.cfm](http://policy.umn.edu/groups/hr/documents/procedure/gradstudentemployment_proc2.cfm).

**Grievance Policy and Procedures**

Grievances and disputes should be resolved directly between the affected parties whenever possible and through respectful conduct. If direct resolution is not possible, the DGS and/or the appropriate Department Head may become involved. When an academic or employment problem cannot be resolved through these channels the Graduate Assistant Employment Office may be able to help, 170 Donhowe Bldg; 612-624-7070; [http://www1.umn.edu/ohr/gae/](http://www1.umn.edu/ohr/gae/)

The Graduate Student Affairs Committee may also provide assistance or the Student Dispute Resolution Center (SDRC), 321 Coffman Union, 612-625-5900 another resource. Staff at SDRC provides a full range of services to students with campus-based complaints or concerns (see [http://www.sos.umn.edu/](http://www.sos.umn.edu/)).
The University Grievance Policy also covers graduate assistants with employment grievances. This provides an independent and confidential process to which graduate assistants may turn. The policy and form for filing a complaint may be obtained from the University Grievance Office, 658 Mgmt/Econ, West Bank, 612-624-1030; http://www.umn.edu/ugo.

There is also an academic grievance policy, for complaints brought by students regarding the University’s provision of education and academic services affecting their role as students. It is the goal of this policy to provide a simple and expeditious process, allowing for both informal and formal resolutions of conflicts. The academic grievance procedure is described on the Senate website: http://www1.umn.edu/ocr/.

STUDENT CONDUCT
It is the policy of the University of Minnesota that minimum standards of conduct are necessary to safeguard the rights, opportunities, and welfare of students, faculty, staff, and guests of the University of Minnesota community and to assure protection of the interests of the University as it seeks to carry out its mission. The complete University of Minnesota Student Code of Conduct is as follows: http://policy.umn.edu/Policies/hr/Hiring/GRADSTUDENTEMPLOYMENT_PROC02.html.

SEXUAL HARASSMENT
Sexual harassment is against the law. It is prohibited by Title VII of the 1964 Civil Rights Act and by the Minnesota Human Rights Act. Sexual harassment is broadly defined to include behavior that is not considered overtly sexual. Although not specifically prohibited, consenting sexual relationships between faculty and student, or supervisor and employee, are actively discouraged. The University of Minnesota has had a strongly enforced policy on sexual harassment since 1981 and encourages the reporting of violations.

The Office of Equal Opportunity and Affirmative Action handles instances of alleged sexual harassment. Call 624-9547 for more information. Occurrences of sexual violence or threats should be reported immediately by calling 911 or University Police at 624-3550. A 24-hour crisis line is also available at 626-1300.

EQUAL OPPORTUNITY
The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation. Aside from sexual harassment, complaints alleging discrimination in the University/student relationship may be handled either by the Student Academic Grievance Policy (see above) or the Office of Equal Opportunity and Affirmative Action at 624-9547.

LEAVES OF ABSENCE
Graduate assistants (GAs) are eligible for unpaid and paid leaves of absence to include the following:

_Sick Leave:_ Graduate assistants are entitled to paid sick leave, not to exceed two weeks (10 days)
consecutive pay for absences caused by occasional or serious illness or injury to themselves, their
dependent child, or the dependent child of a registered same sex domestic partner. In the case of
repeated absences due to illness, the responsible administrator/supervisor may request a
healthcare provider's certification verifying the inability to work. For GAs on an hourly pay
appointment, sick leave shall be unpaid except in the following circumstances: (1) work hours are
fixed on a weekly basis, and the sick day falls on the day of the week normally scheduled for
work; OR (2) the work schedule is variable with sick pay prorated for the work week.

Parental Leave: Graduate assistants may be eligible for parental leave, paid or unpaid. Refer to
the Administrative Policies through links to Parental Leaves for Academic Employees and Family
& Medical Leave. See also
http://policy.umn.edu/Policies/hr/Hiring/GRADSTUDENTEMPLOYMENT.html#200.

Graduate assistants generally do not meet the minimum eligibility requirements (average 60
percent appointment) for FMLA. If a graduate assistant meets the FMLA requirements, they may
be eligible for up to twelve weeks' absence during a fiscal year for reasons of:
1. the employee's own serious health condition;
2. the serious health condition of an employee's immediate family member; or
3. caring for a newborn or newly-placed adopted child or foster child.

See http://policy.umn.edu/groups/hr/documents/policy/fmla_pol.cfm for further information.

Bereavement Leave: Graduate assistants are provided, at the discretion of the department, up to
three workdays paid bereavement leave upon death of an immediate family member. This leave is
granted for purposes of (1) attending the funeral services, ceremonies, and/or interment; (2)
making necessary arrangements; (3) travel related to the death; and (4) bereavement time.
Responsible administrators/supervisors are encouraged to make special arrangements to
accommodate granting of leave.

Military Leave: Graduate assistants are entitled to fifteen days leave in a calendar year for active
military duty; such leave falling within a paid appointment period shall be with pay. Verification
of notice to report for duty (including dates of leave) shall be provided to the responsible
administrator/supervisor. Also see the Administrative Policy on Military, Court and Civic Duty
Leaves found at
http://www.policy.umn.edu/groups/hr/documents/Policy/MilCourtCivicLeave_pol.cfm.

Jury Duty: Graduate assistants are entitled to paid leave for jury duty. A copy of the court notice
shall be provided to the responsible administrator/supervisor. If released early from jury duty by
the court administrator, the GA shall return to work.

Voting Leave: Graduate assistants are eligible for a paid leave of absence to vote in any state-wide
general election or state-wide primary election, or in any election to fill a vacancy in the office of
a United States senator or representative during the morning of the election day. Paid leaves to
vote shall cover only those hours the employee is regularly scheduled to work and shall be
reasonable in relation to voting site location and distance. As federal and state Work-Study
regulations do not permit payment for hours not actually worked, work-study students must be
granted upon request an unpaid leave of absence to vote in elections as described here.

Vacation: Graduate assistants do not receive paid vacation leave.

SAFETY
Occupational Safety and Health Administration (OSHA) regulations require that all employees who are potentially exposed to hazardous substances received Minnesota Employee Right to Know Act training. This training must be renewed annually and must be documented in your department office.

ACCIDENTS
Either the State of Minnesota Workers’ Compensation Plan or liability insurance covers work-related accidents or injuries. All injuries (examples include chemical burns, open wounds and eye injuries) should be treated without delay (see guidelines below) and must be reported to the department and the victim’s immediate supervisor as soon as possible (within 24 hours).

For a serious injury, call the emergency number 911. For a victim requiring critical care provide first aid and seek medical care at Boynton Health Service. For injuries occurring when Boynton Health Service is closed, use Fairview-University Medical Center Emergency Room, 420 Delaware Street SE (612-273-2700). For non-emergency medical attention you may use your own clinic or one of the University’s approved clinics posted by all lab telephones.

All work-related accidents must be reported to the departmental safety administrative officer, as soon as possible and within 24 hours so that the appropriate documentation can be provided to the University in a timely manner.

COUNSELING, MEDIATION & OTHER SERVICES
University Counseling and Consulting Services (http://www.uccs.umn.edu/)
109 Eddy Hall, Mpls Campus
612-624-3323
30 Coffey Hall, St Paul Campus

Student Conflict Resolution Center (http://www.tc.umn.edu/sos/)
107 Eddy Hall, U of M East Bank
612-624-7272
fax: 612-626-0691; Email: www.sos@umn.edu

Office for Student Conduct & Academic Integrity (OSCAI; http://www.oscai.umn.edu)
211 Appleby Hall, U of M East Bank
612-624-6073

University Employee Assistance Program (http://www.cbs.umn.edu/plantbio/gradprog/research/)
319 15th Ave SE, B20 Donhowe, Mpls Campus
612-625-2820; fax: 626-0243

Office of Human Resources (http://www1.umn.edu/ohr/)
319 15th Ave SE, 200 Donhowe Mpls Campus
612-625-2000; fax: 624-6037

Boynton Health Service (http://www.bhs.umn.edu)
410 Church Street SE, Mpls Campus; 612-625–8400
109 Coffey Hall, St. Paul Campus; 612-624-7700
Crisis Connection; 612-379-6363
Emergency Care
Fairview-University Medical Center; 612-672-6402

University Student Legal Service (USLS; http://www.umn.edu/usls)
160 West Bank Skyway, 219 19th Ave., S.
612-624-1001; fax: 624-7351

University Veteran Services (http://www.cbs.umn.edu/plantbio/gradprog/research/)
320 Science Teaching & Student Services
222 Pleasant St. S.E.
email veterans@umn.edu or call 612-625-8076.

ADDITIONAL INFORMATION
General policies and information pertaining to graduate students is available at
(http://www.grad.umn.edu/deans-office/policies_goverance/index.html)

Employment Information for Teaching Assistants, Research Assistants or Administrative Fellows
is available at (http://www.umn.edu/ohr/gae)

Plant Biological Sciences Graduate Program Faculty Research Interests
(http://www.cbs.umn.edu/plantbio/gradprog/research/)

One-Stop Student Services
(http://www.onestop.umn.edu/)

Center for Teaching and Learning Services (http://www1.umn.edu/ohr/teachlearn/)
Office of Human Resources
120 Fraser Hall, Mpls Campus
612-625-3041

Council of Graduate Students (COGS; http://www.cogs.umn.edu/)
405 Johnston Hall, Mpls Campus
612-626-1612
Graduate Assistant Office (GAO; http://www1.umn.edu/ohr/gae/)
200 Donhowe Bldg., Mpls Campus
612-624-7070; fax: 625-9801

International Student and Scholar Services http://www.isss.umn.edu)
HHH Center, Mpls Campus
612-626-7100; fax: 736-1190

Minnesota English Language Program
(http://www.cce.umn.edu/Minnesota-English-Language-Program/index.html)
20 Nicholson Hall
216 Pillsbury Drive S.E.
Minneapolis, MN 55455

Office of Student Health Benefits (http://www.shb.umn.edu/index.htm)
N-323 Boynton Health Service, Mpls Campus
612-625-6936; fax: 626-5183

Disability Resource Center (https://diversity.umn.edu/disability/)
McNamara Alumni Cntr, Suite 180
612-626-1333; fax: 626-9654

Housing and Residential Life (http://housing.umn.edu)
Comstock Hall - East
210 Delaware St. S.E., Mpls Campus
612-624-2994; fax: 624-6987
Email: housing@umn.edu

210 Fraser Hall, Mpls Campus
612-624-1111; 1-800-400-8636; fax: 624-9584

Recreational Sports (http://www.recwell.umn.edu/facilities/index.php)
108 Cooke Hall, Mpls Campus
612-625-6800; fax: 626-7708
104 St. Paul Gym, St. Paul Campus
612-625-8283; fax: 624-3040
Email: recsport@umn.edu

U-Card Services (http://www.umn.edu/ucard)
U-Card Main Office
Coffman Memorial Union, Rm G22
300 Washington Ave SE
612-626-9900; fax: 626-9911
Minneapolis Satellite U Card Station - Coffman Union Information, (612) 624-4636
St. Paul Satellite U Card Station - St. Paul Student Center Information Desk, (612) 625-9794