

Handbook for Horticulture Graduate Students

Academic Year 2020-21



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PREFACE

We welcome you to Washington State University (WSU) and the Department of Horticulture, an Academic Unit of the College of Agricultural, Human, and Natural Resource Sciences.

While at WSU we encourage you to take advantage of the great horticultural experience that can be yours in the Pacific Northwest. The required graduate student statewide tour will provide an introduction to the diversity of horticulture and agriculture in the region; the areas and industries of the state are yours to explore. The growers and people of related enterprises of horticulture will be pleased to visit with you and help you to learn about Washington horticulture. Make good use of opportunities to accompany faculty members into the state for extension or research meetings. They will be glad to have you accompany them. Once your program and research project are in progress, you may be asked to present your findings to the industry. Such presentations will benefit both you and our industry.

As you start Graduate School at WSU, we welcome you as members of our department. You are now an integral part of what we do and what we stand for. Your success will enhance our department, and as a result, provide you with an even better education. Each of you will have the chance to improve your skills in the classroom and the laboratory, and many of you will become skilled in field research as well. We encourage each of you to seek out opportunities to broaden your knowledge base to become more marketable upon completion of your degree.

We have an outstanding faculty and you should visit with them frequently, for much can be gained from interaction with those that you will encounter in and out of the classroom. We welcome every opportunity to visit with graduate students and to share your successes as well as your problems. We are proud of our department and our state and want you to experience this pride.

We congratulate each of you on your achievements to this point in your education and trust that when you finish your work at WSU you will be glad you made the choice to study with us. We wish you the best in your classes and your research. You will be as successful as the effort you expend in each. We hope that your experiences at WSU in the next few years will exceed your expectations, personally and professionally.

The information that follows is intended to acquaint you with the department and to inform you of policies and procedures that must be followed in order to obtain your graduate degree. Please keep this information handy and refer to it to help guide you through your graduate education in Horticulture.

INTRODUCTION

It is well-accepted that the most important aspect of a university's research effort is its graduate program. The Department of Horticulture aims to ensure the best graduate education possible-not only in the classroom and in your research, but also in the many informal experiences involved during your tenure as a graduate student.

Policies and procedures regarding graduate education are set at three levels, namely university, college and department. Thus, at times, it may be difficult or confusing to find the official policy. The WSU [Graduate Catalog](#) and the Graduate School's [Policies and Procedures Manual](#) contain most of the general policies on admission, courses, policies and procedures. Individual departments often maintain more specific requirements. This handbook is intended to inform you of departmental policies and procedures that you need to follow in obtaining your graduate degree in Horticulture at WSU.

PROFESSIONAL AND ACADEMIC INTEGRITY

The Department of Horticulture is committed to the creation and promotion of an atmosphere of free inquiry and freedom of expression by all members of our community. The department recognizes and adheres to the tenet that integrity in scientific research and academic programs is vital to the advancement of knowledge within the scientific and public community. Integrity in scientific research and academic matters is first a very important matter for individual conscience and commitment, but also is a collective commitment of the university as set forth in various documents ([Faculty Manual](#), [Standards of Conduct for Students](#), the [Graduate Student Code of Rights and Responsibilities](#), and [Responsible Conduct of Research](#)). Cases of scientific fraud, plagiarism, falsification of data, failure to comply with federal, state or university requirements, inappropriate use of research funds and facilities, and incorrect authorship are examples that can damage the credibility of research and must be avoided.

WSU has established an executive policy on consensual relationships between faculty and students and between supervisors and subordinates, which states that “faculty or anyone in a supervisory role is prohibited from having supervisory responsibility over a student or subordinate with whom he or she is currently having a romantic and/or sexual relationship.” If a consensual relationship occurs, the faculty member or supervisor must disclose the relationship to their supervisor, with students disclosing the relationship to the their Department Chair. Sanctions will not ordinarily be imposed when developing romantic and sexual relationships are promptly self-reported and measures are taken to remove the conflict of interest, so long as the relationship is not alleged by one of the parties to be nonconsensual or discriminatory. The complete executive policy document can be downloaded at <https://policies.wsu.edu/prf/index/manuals/executive-policy-manual-contents/ep28-faculty-student-supervisor-subordinate-relationships/>.

GRADUATE PROGRAM ADMINISTRATION

Horticulture Graduate Program Bylaws

The Horticulture Graduate Program is governed by official bylaws, approved by the Graduate Faculty in Horticulture, The Graduate School, and the WSU Faculty Senate. The [Horticulture Graduate Program Bylaws](#) (Appendix A) define the qualifications for membership on the Horticulture Graduate Faculty, administration of the Horticulture Graduate Program, composition of graduate student committees, and participation of Horticulture graduate students in the administration of the Horticulture Graduate Program.

The Horticulture Graduate Program is administered by the Horticulture Graduate Executive Committee, which coordinates and advises the Department Chair on the Horticulture Graduate Program. At the discretion of the Department Chair, a graduate student representative will be appointed to the Executive Committee and other ad hoc committees. However, Horticulture graduate students may not serve on other graduate students' Faculty Advisory Committees.

Horticulture Graduate Executive Committee

It is the goal of the Executive Committee to maintain high standards of graduate education in Horticulture at WSU. The Executive Committee consists of five to six active Horticulture Graduate Faculty and one graduate student representative, elected by the Horticulture graduate students. The current Executive Committee members are:

Lisa DeVetter, Chair, NWREC-Mt Vernon, 360-848-6124, email: lisa.devetter@wsu.edu
Carolina Torres, TFREC-Wenatchee, 509-293-8808, email: ctorres@wsu.edu
Lee Kalcsits, TFREC-Wenatchee, 509-293-8764, email: lee.kalcsits@wsu.edu
Per McCord, IAREC-Prosser, 509-786-9254, email: pmmcord@wsu.edu
Cameron Peace, Pullman, 509-335-5298, email: cpeace@wsu.edu

Bernadette (Bernie) Gagnier, Graduate Student Representative, email: bernadette.campbell@wsu.edu

The Executive Committee recommends Horticulture graduate policies and curricula to the Horticulture Graduate Faculty and Department Chair, who ensures adherence to them. The Committee reviews the progress of all Horticulture graduate students to attempt to avert disruptions in their progress toward the degree and to ensure the quality of graduate student experiences. The Executive Committee or its Chair is available to meet with graduate students, either as a group or individually, to discuss graduate education. Committee members are available to discuss any problems that might affect your program. A student may discuss problems either with individual members of the Executive Committee, the entire Committee, or file a written report with the Department Chair. If you have questions regarding policies or problems that you wish to discuss with someone other than your advisor, PLEASE feel free to contact the Chair of the Executive Committee or any other member of the Committee.

Other duties/responsibilities of the Executive Committee include: a) screening applications and making recommendations to the Horticulture Graduate Faculty for admission of applicants to the Graduate Program in Horticulture; b) arranging for major advisors for each incoming graduate student and for on-campus advisors when needed; c) making recommendations to the Department Chair for the assignment of Graduate Research Assistants and Teaching Assistants; d) evaluating the progress of each graduate student annually and making recommendations to the Department Chair for orderly progress of students in the graduate program; and e) serving as a recognized grievance committee to mediate problems that arise in the normal graduate student/major advisor relationship when requested by either party. Implementation of recommendations would proceed after consultation and approval by the Department Chair.

Horticulture Graduate Coordinator and Chair of the Executive Committee

The Horticulture Graduate Coordinator, Dr. Lisa DeVetter, is Chair of the Executive Committee, with responsibilities to: a) direct the Executive Committee in carrying out its functions, b) serve as a contact person with the Graduate School regarding policies and activities, c) be responsible for an initial orientation meeting with new graduate students to explain the policies and procedures of the Graduate School and the Horticulture Graduate Program, and d) actively recruit prospective students and arrange for initial contacts with Horticulture Graduate Faculty.

Graduate Center and Academic Coordinator

The Johnson Hall Graduate Center administers the Horticulture Graduate Program and is located in Johnson Hall 131. The Academic Coordinators ([Deb Marsh](#) 509-335-2615, [Lisa Lujan](#), 509-335-9542, [Jill Staab](#), 509-335-601) are responsible for handling graduate student records, scheduling, and administering certain aspects of the Horticulture Graduate Program, as detailed herein. The Academic Coordinators are available to answer many of your questions regarding the implementation of Graduate School and program policies and procedures.

Student's Major Advisor(s)

Each graduate student is assigned a Major Advisor before being accepted into the Horticulture Graduate Program. Except by written exemption from the Department Chair, all accepted graduate students must also have a funding package that includes either a grant-funded or department assistantship. The Major Advisor is the student's main contact for information regarding graduate education. The Major Advisor, in consultation with the graduate student, will determine and direct the student's activities while enrolled at WSU. The Major Advisor will serve as the chair (or co-chair) of the graduate student's Faculty Advisory Committee.

Some students may have two Horticulture Graduate Faculty members jointly serve as co-Major advisors and co-chairs of the student's Faculty Advisory Committee. Only tenured or tenure-track Horticulture Graduate Faculty may serve as a sole Major Advisor, whereas non-tenure track WSU research, clinical, affiliate, emeritus, or adjunct (non-WSU) faculty, or USDA-ARS researchers, that are appointed to the

Horticulture Graduate Faculty, as noted in the Horticulture Graduate Program Bylaws, may co-chair a student's Faculty Advisory Committee along with a tenured or tenure-track Horticulture Graduate Faculty member.

Occasionally, a student may wish to change Major Advisors. It is the student's responsibility to find a new Horticulture Graduate Faculty member willing to take over the role of Major Advisor and to request a change after consulting with the Department Chair. When a student needs to change a Major Advisor because the faculty member is leaving WSU, the Executive Committee will work with the student and other faculty to find the best alternative Major Advisor.

Student's Faculty Advisory Committee

The graduate student's Faculty Advisory Committee will be responsible for setting, assessing, and maintaining standards for each student. Requirements set by the Faculty Advisory Committee may be in whatever form they feel is most appropriate and will include courses and independent research. This will allow each student's program to be individualized for that student's particular needs and interests. It is the ultimate responsibility of the Major Advisor and the student to form the Faculty Advisory Committee. A bulleted list of graduate student, major advisor, and faculty committee members' responsibilities is shown in Appendix B.

Members of the student's Faculty Advisory Committee are selected by the Major Advisor in consultation with the graduate student, although committee membership is regulated by the Horticulture Graduate Program Bylaws (Appendix A) and Graduate School policy (see chapters 7.C. and 8.C. of the Graduate School's Policies and Procedures Manual for policy on Master's and Doctoral committees, respectively). Committee members must be approved by the Department Chair, as well as the Graduate School, as shown on the [Program of Study](#). Committee members should be selected for their abilities and qualifications to assist the student in completing a graduate program and preparing for a professional post-graduate career. A student's Faculty Advisory Committee can be changed at any time by completing a [Committee Change](#) form that is approved by the new Faculty Advisory Committee and the Program.

M.S. Student's Faculty Advisory Committee shall consist of a minimum of three committee members, including the Major Advisor as Chair. The student's Major Advisor or co-advisor must be tenured or tenure-track Horticulture Graduate Faculty (see Horticulture Graduate Program Bylaws for a list of tenured or tenure-track Horticulture Graduate Faculty), however, a non-tenure track WSU research, clinical, or affiliate faculty, or USDA-ARS researcher, who are appointed to the Horticulture Graduate Faculty in the Horticulture Graduate Program Bylaws, may co-advise/co-chair the committee. If a graduate committee is chaired by a tenured/tenure-track Affiliate Horticulture Graduate Faculty member, then at least one member of the committee must be a Horticulture Graduate Faculty member tenured or tenure-track in the Horticulture Department. Overall, the M.S. Faculty Advisory Committee must consist of at least one tenured/tenure-track Horticulture Graduate Faculty member, one member who is graduate faculty, but not necessarily in the Horticulture Department, and the third member may be from inside or outside the program/university. Non-WSU faculty and other professionals must be nominated and approved by the Graduate School. All committee members must hold a degree of comparable level to the degree sought by the candidate.

Ph.D. Student's Faculty Advisory Committee shall consist of a minimum of three committee members including the Major Advisor as Chair. The student's Major Advisor or co-advisor must be tenured or tenure-track Horticulture Graduate Faculty (see Horticulture Graduate Program Bylaws for a list of tenured or tenure-track Horticulture Graduate Faculty), however, a non-tenure track WSU research, clinical, or affiliate faculty, or USDA-ARS researcher, who are appointed to the Horticulture Graduate Faculty in the Horticulture Graduate Program Bylaws, may co-advise/co-chair the committee. If a graduate committee is chaired by a tenured/tenure-track Affiliate Horticulture Graduate Faculty member, then at least one member of the committee must be a Horticulture Graduate Faculty member tenured or tenure-track in the Horticulture Department. Overall, the Ph.D. Faculty Advisory Committee must consist of at least two tenured/tenure-track Horticulture Graduate Faculty members; a third member must be graduate faculty in a WSU program, but is not required to be tenured/tenure-track. Experts from outside

of WSU and faculty from other institutions may serve as additional committee members; these individuals must be nominated and approved by the Graduate School. All committee members must hold a degree of comparable level to the degree sought by the candidate.

The graduate student is advised to meet each semester, but not less than once each year, with all Faculty Advisory Committee members, either individually or in a combined committee meeting (as appropriate), to appraise them of progress on degree-related activities and to receive advice regarding graduate work and input on student research progress.

PROGRAM REQUIREMENTS

Degree Options (General)

The Department offers two horticulture graduate degrees. The appropriate degree is determined by the student in consultation with the Major Advisor and Faculty Advisory Committee members, all of whom must approve the selection. These degree options are described briefly below. See the sections on "Graduate Program of Study" and "Thesis and Special Problems Research" for more information about each degree option.

A non-thesis M.S. degree is not offered in Horticulture. If you are interested in a non-thesis option with a horticulture emphasis, please consider the M.S. Agriculture degree, in which faculty in Horticulture can serve as major advisors. The [M.S. Agriculture degree](#) is offered through the CAHNRS, primarily as an [online](#) degree.

Master of Science (M.S.) Degree (Thesis) Option: The M.S. degree program is research-based, involving a formal, major research project, and completion of a thesis. The objectives of this option are to train students in the experimental scientific method and to prepare students for handling major projects after graduation or for entering a doctoral program.

Doctor of Philosophy (Ph.D.) Degree Option: All doctoral candidates must conduct independent research leading to a doctoral dissertation and publication of peer-reviewed research papers, with the objective of making a major contribution to the body of scientific knowledge in horticulture. Students in this degree option are expected to have completed a research-based master's degree or to have research experience prior to enrolling in the doctoral program.

Graduate Minor in Horticulture: Students in other doctoral programs at WSU may obtain a minor in Horticulture. Although not limited to, graduate students in Molecular Plant Sciences (MPS) with a Horticulture major advisor are encouraged to obtain a minor in Horticulture.

For all graduate students majoring in Horticulture, a Graduate Program [Learning Outcomes Assessment](#) (Appendix B) plan will be followed.

Direct Ph.D. Studies and By-Pass Options

Students with a B.S. degree applying to Graduate School in the Department of Horticulture are generally considered candidates for the M.S. degree. In some cases, a student may wish to apply directly into a Ph.D. program and forego a M.S. degree. This may be the case for students with substantial research experience and capacity for graduate studies.

Students with a B.S. applying directly to a Ph.D. program need to include additional details in their Statement of Purpose that accompanies their application in order for the Graduate Executive Committee and prospective advisors make an informed decision on whether or not to advance the applicant to a Ph.D. program. The applicant needs to include a description of the research project(s) they were involved in and other important details regarding the objectives of the research, duration they were involved in the research, supervisors, role within the project, lessons learned from the experience, and explicitly why they

want to pursue a Ph.D. degree and forego a M.S. degree. Publications and/or conference presentations resulting from the research should also be documented in the application. Applicants should have a GPA of at least 3.25. If they are not a native English speaker, test scores of either TOEFL or IELTS must be submitted.

Students working towards a M.S. in Horticulture may also decide they would rather work directly towards a Ph.D. degree instead of finishing their M.S. This may be appropriate for a given student's career goals and if their project can be expanded into a quality Ph.D. project. This by-pass option is available under certain circumstances and the following steps must be taken. First, the student must submit a written letter (email) to their major advisor expressing their desire to and rationale for transfer to a Ph.D. program. The Graduate Coordinator and the Department Chair need to be carbon-copied in with the request. If the Department Chair approves of the request, the major advisor will convene the student's thesis committee to discuss. To be considered ready for transfer to the Ph.D. program, a student must:

- Demonstrate evidence of significant progress in research during their time as a M.S. student
- Demonstrate strong academic performance in graduate-level courses

After the committee reviews and discusses the student's progress and performance in research, coursework, and other professional activities, they will then vote on the request. For the request to be elevated to a recommendation, 75% of the committee must agree. In situations where there are only three committee members, the vote must be unanimous. The Department Chair must also approve of the recommendation before the student is allowed to transfer to a PhD program. If the student is not granted their request, they will continue on with the completion of their M.S. program.

If the student is recommended into the Ph.D. program, the Graduate School should be notified using the Plan and Degree Level Change form from the Graduate School. The Johnson Hall Graduate Center will facilitate this at the student's request. The student will also need to file a Ph.D. program of study. Note that successful transfer from the M.S. to the Ph.D. program does not eliminate any of the requirements for the latter degree as described by the Graduate School or Department of Horticulture Graduate Student Handbook.

Departmental and Professional Service

All graduate students are considered to be in training for professional positions and are expected to take advantage of opportunities to prepare themselves for all aspects of professional life. In addition to learning about conducting research and taking courses to improve their individual knowledge, students are expected to:

- interact professionally with local and international members of the academic community, horticultural industries, and the public;
- promote the professional development and growth of other students; and
- contribute to the academic functioning and governance of WSU and other appropriate professional bodies, for example, by providing exemplary service on committees.

Graduate students have a voice in university and department governance, and they are expected to exercise their opportunities to be represented. The Horticulture graduate student body is expected to select student representatives for the following: Horticulture Graduate Executive Committee, departmental Safety Committee, and representatives to departmental Faculty meetings and the [WSU Graduate and Professional Student Association](#) (GPSA). Other opportunities are also available for interested students.

Review of Graduate Student Progress (Annual Reviews)

Annual reviews are required by the Graduate School. They are valuable in assisting the student in the timely completion of all major degree requirements. Discussions on professional development and the

degree program itself are also valuable to have during the annual review and serve to benefit the student. However, the graduate student should not rely upon this review to be reminded of all program and Graduate School requirements. **IT IS THE STUDENT'S RESPONSIBILITY TO COMPLY WITH ALL REGULATIONS AND MEET ALL DEADLINES, AS SET FORTH IN THE WSU GRADUATE SCHOOL'S [POLICIES AND PROCEDURES MANUAL](#), AND HEREIN.**

Once each year, usually in May-June, a review form (see Appendix A) will be sent to each graduate student by the Academic Coordinator to be completed with updated information regarding their progress. It is the responsibility of the student to see that the form is properly completed, with comments and signatures added by themselves and their Major Advisors. In addition to the completed review form, a curriculum vitae (CV) should also be submitted each year. A designated member of the Graduate Executive Committee (usually the chair) plus one additional alternate reviews each annual review. The chair of the Graduate Executive Committee makes recommendations to the Department Chair regarding students' progress. In cases where progress is not satisfactory or concern is elevated by the Graduate Executive Committee, the Department Chair notifies the student as to his/her progress, and makes recommendations to the student, Major Advisor, or the Graduate School to correct any deficiencies in the student's program to date. If a student's progress is determined to be unacceptable, a copy of the notification memorandum will be sent to the Graduate School. This may result in a follow-up progress review after the Fall semester. If two unacceptable evaluations are received, the student may be dismissed from the Horticulture Graduate Program. **FAILURE TO MEET THESE REQUIREMENTS AFTER REVIEW BY THE GRADUATE EXECUTIVE COMMITTEE MAY RESULT IN RESTRICTIONS AGAINST STUDENT REGISTRATION THE FOLLOWING SEMESTER.**

The Graduate School has established academic standards that must be met for continued enrollment in graduate programs at WSU. Among those standards is the requirement to maintain a minimum cumulative and program GPA of 3.0.

Teaching/Outreach Experience

All students for advanced degrees in horticulture are expected to participate in teaching, Extension, and research activities, while at WSU. This experience is intended to give you some knowledge of how to communicate horticultural information to students and/or stakeholder groups. M.S. and Ph.D. students are required to satisfy departmental teaching requirements for each degree separately, regardless of previous teaching experience. Realizing that each graduate student's experience will be different, this teaching/Extension experience requirement can be met by completing **one or a combination** of the following teaching/Extension duties at some time during the student's graduate program:

1. Prepare and present **lectures** in person or by distance delivery during an the undergraduate or graduate level in courses offered at any WSU campus.
2. Conduct **tutorial sessions** for undergraduate students.
3. Assist with the preparation and conduct of **laboratory periods**.
4. Prepare and present **asynchronous presentations**, each equivalent to a lecture period, for possible use later in departmental programs. Topics and presentation format must be approved by his/her advisor. For example, the student might arrange to have slide presentations electronically recorded or might prepare computer-assisted learning modules.
5. Perform required teaching duties on a **Teaching Assistantship**.
6. Prepare and present **Extension presentations** to stakeholder groups.
7. Prepare and present scientific presentations at professional meetings.
8. Other teaching opportunities as available and agreed upon by the Major Advisor.

It is the responsibility of the student and the Major Advisor to arrange for the teaching experience to be completed and to assume the responsibility for certifying that this requirement has been met prior to

setting the date for the student's final oral examination. It is the responsibility of the Major Advisor or the instructor of the course or supervisor of the event in which the teaching activities will occur to assist the graduate student with learning and applying appropriate educational techniques in fulfilling this requirement.

Publications

Publishing refereed journal articles is typically an important part of a graduate degree program and professional development in a student's selected field. However, there may be instances where a student does not publish their work. Publications should be discussed as soon as possible between the student and their advisor so expectations are established. Generally, it is recommended a MS student publish 1-2 papers from their thesis and a Ph.D. student publish 2-3 papers from their dissertation. Publications usually pertain to referred journal articles, but in some cases may be extension articles.

Continuous Enrollment Policy

All full-time graduate students must register for a minimum of 10 credit hours (Note: credit hours for a course are generally the number of hours of lecture time a class meets per week, although three hours of laboratory-based activities in a course is equivalent to only one credit hour) each Fall and Spring semester, with at least one (1) of those credits being Hort 700 (M.S. students) or Hort 800 (Ph.D. students) to track the contributions of your Major Advisor. Part-time graduate students must register for a minimum of 2 credit hours and a maximum of 9 credit hours each Fall and Spring semesters. International graduate students with F-1 or J-1 visa status should consult with the [Office of International Students and Scholars](#) for enrollment requirements, which in general requires the same enrollment level as full-time graduate students.

Apart from exceptions for graduate leave for personal reasons or internship leave, all M.S and Ph.D. students (prior to preliminary examination) are required by the Graduate School to be continuously enrolled in a minimum of 2 credits each semester, excluding summer. Doctoral Students who have successfully completed their course work and preliminary exam, and who do not enroll for credit will automatically be placed into Continuous Doctoral Status for not more than three years, or until they register for 2 credits of Hort 800 in the semester they plan for their dissertation defense exam. Doctoral students in Continuous Doctoral Status will be charged a small administrative fee (\$50) and will have limited access to University resources. Graduate students who are not enrolled for a semester (except doctoral candidates in Continuous Doctoral Status) and have not received approval from the Graduate School for graduate leave or internship leave will have to reenroll and pay a \$25 fee. Reenrollment requires departmental approval and is not guaranteed.

See Chapter 5 of the [Graduate School Policies and Procedures Manual](#) for details on these policies.

Exit Survey and Interview

Each graduating student must complete an exit survey and provide a CV upon completion of the Horticulture graduate program. Additionally, graduate students are invited to meet with the Department Chair for an exit interview at the completion of their graduate program. The exit survey can be obtained from the Academic Coordinator (Deb Marsh). The required exit survey and optional interview with the Department Chair will allow the student an opportunity to reflect on their time at WSU and to provide formal feedback and recommendations to the Department regarding the graduate program.

GRADUATE COURSEWORK

A graduate degree in Horticulture requires a broad understanding of a large body of knowledge in horticulture, coupled with a specialization within that body of knowledge and specific knowledge in related fields. The following recommended courses are meant to reflect a balance between these two goals – assuring knowledge of horticulture and the Faculty Advisory Committee's discretion to design a program suited to each graduate student's area of specialization. Appropriate academic standards must be achieved in all coursework. Regulations as to minimum GPA in coursework and academic probation are found in the [Graduate School Policies and Procedures Manual](#) (pp. 53-54).

Recommended Courses

To assure a broad understanding of what constitutes the field of horticulture, it is recommended that all students complete some courses from each of the categories listed below. Note that the listed courses are examples and do not include all courses that could possibly be taken within each of these categories. In addition, some courses may be considered to satisfy one of two possible categories (e.g., Hort 518.) **These recommendations can be fulfilled by similar courses taken in a prior B.S. or M.S. degree.**

Applied Plant Sciences: Pomology (Hort 310), Viticulture (Hort 313), Olericulture (Hort 320), Landscape Plant Installation and Management (Hort 331), Greenhouse Management and Crop Production (Hort 357), Trends in Horticulture (Hort 425), Advanced Viticulture (Hort 513), Post-Harvest Biology and Technology (Hort 518), Fruit Crops Management (Hort 521), Potato Science (PISc 590 at Univ. Idaho), or Advanced Topics in Horticulture (Hort 503).

Basic Plant Sciences: Systematic Botany (Biol 332), Plant Physiology (Biol 420), Plant Genomics and Biotechnology (Hort 480), Plant Anatomy (Biol 509), Viruses and Virus Diseases of Plants (PIP 511), Molecular Mechanisms of Plant Development (Biol 512), Plant Metabolism (Biol 513), Stress Physiology of Plants (Biol 517), Plant Genomics and Biotechnology (Hort 480), Advanced Horticultural Crop Physiology (Hort 516), Post-Harvest Biology and Technology (Hort 518), Chemistry and Biochemistry of Fruit and Wine (Hort 535), Bioinformatics for Research (Hort 550), Plant Cell Biology (Biol 537), Insect-Plant Interactions (Ent 549 at Univ. Idaho), Plant Ecophysiology (Biol 560), Diversity of Plants (Biol 570), or Advanced Topics in Horticulture (Hort 503).

Research Foundation: Courses that contribute to a research foundation (foundational, analytical, methodological, or techniques): General Genetics (MBioS 301), Statistical Methods in Research I (Stat 412), Environmental Biophysics (Soils 514-515), Soil Microbiology (Soil Sci 531), Molecular Biology I & II (MBioS 503 & 504), Experimental Methods in Plant Physiology (Biol 504), Statistical Methods in Research II (Stat 512), Soil-Plant-Microbial Interactions (Soil Sci 541), Field Analysis of Sustainable Food Systems (AFS 545), Special Projects in Electron Microscopy (EMic 586), General Biochemistry (MBioS 513 & 514), Introduction to Population Genetics (Biol 519), Plant Molecular Genetics (MPS 525), Plant Tissue Culture Techniques (PISc 533 at Univ. Idaho), Analyzing Microarray and Other Genomic Data (Stat 565), Biochemical Signaling in Plants, Animals and Microorganisms (MPS 571), or Advanced Topics in Horticulture (Hort 503).

Supporting Areas: Courses that contribute to an understanding of the agricultural disciplines that directly support undergraduate horticulture degrees: Introductory Soil: A Living System (Soil Sci 201), Introduction to Agroecology (Soil Sci 302), Diseases of Fruit Crops (PIP 300), Ecology and Management of Weeds (Crop Sci 305), Agricultural Entomology (Entom 340), Pest Management in Organic Agriculture Production Systems (Entom 350), Honey Bee Biology (Entom 361), General Plant Pathology (PIP 429), Soil Fertility (Soil Sci 441), Pesticides and the Environment (IPM 552), Current Research in Organic and Sustainable Agriculture (AFS 501), Advanced Cropping Systems (Crop Sci 503), Soil Fertility Management (Soil Sci 547).

Soft/Essential Skills: Courses that extend beyond the agricultural sciences but contribute to professional development: Research and Extension Communications in Agriculture (AGRI 587), Management of

Organizations (E_M 501), and Project Management (E_M 564). [Tidal Leadership](#) courses may also be of interest to students and should be discussed with their advisor.

Required Courses: Regardless of which of the above recommended courses are taken, all full-time Horticulture graduate students should enroll in the following courses during their degree program:

- Research Orientation and Presentation (Hort 508; 2 credits) - Emphasizes development of project proposals and communication of oral presentations, posters, and summaries. Enrolled students will present their research proposals to the department during an Expo coordinated by the instructors. This course should be taken within a student's first year in their degree program, although it is not advised first-semester graduate students take this course. For more detail, see the section below titled "Seminars". *Graded.*
- Statewide Tour/Advanced Topics in Horticulture (Hort 503; 1 credit) – Students should participate in the tour as soon as possible in their degree program. Hort 503 is taken the Fall semester following the summer in which they participate in the tour. For more detail, see the section below titled "Statewide Tour". *Graded.*
- Seminar (Hort 509; 1 credit per semester for a maximum of 12 credits) – This course provides seminar presentations covering recent scientific developments in the field of horticulture. Students must enroll in this course each academic semester they are enrolled full-time (unless enrolled in Hort 510). *S,F grading.*
- Graduate Seminar (Hort 510; 1 credit for a maximum of 4 credits) – This course is generally taken the final semester of a student's degree program whereby the student delivers their exit seminar during regularly scheduled departmental seminars (i.e., at the same time Hort 509 is offered). For more detail, see the section below titled "Seminars". *Graded.*
- At least one credit of Hort 700 (M.S. students) or Hort 800 (Ph.D. students) every semester the student is enrolled full-time (except summers). Note students must be enrolled with a minimum of 2 credits in the term of prelim and/or final exams. Degree requirements include 4 cr minimum Hort 700, or 20 cr minimum Hort 800. *S,U grading.*

Fulfilling some or all of these recommended categories of coursework may occur before admission into the Horticulture Graduate Program, such as, in an undergraduate program or previous M.S. program. However, prior completion of any of these courses does not preclude the required coursework listed in the student's Graduate Program of Study (see next section). The graduate student's Faculty Advisory Committee will advise the student regarding possible ways to fulfill this coursework.

Graduate Program of Study

The Graduate Program of Study is the official Graduate School document that lists the student's research topic, the members of the Faculty Advisory Committee, and all of the classes that will apply towards the graduate degree. The Program of Study may include selected courses from the list of recommended courses above, or other courses that the Major Advisor and Faculty Advisory Committee deem essential. Once approved, it becomes the basis for the requirements of the degree. Soon after arriving at WSU, students should consult with their Major Advisor about a Program of Study and possible committee members. The graduate student, the Major Advisor, and the Faculty Advisory Committee will develop the graduate program to be submitted to the Graduate School. Preparation of the specific Program of Study form for either the M.S. or Ph.D. degree is the responsibility of the student, and the Graduate School's Deadlines and Procedures for Graduation for [M.S.](#) or [Ph.D.](#) should be strictly followed. The completed form, with signatures from the entire Advisory Committee and Horticulture Department Chair, is then submitted to the Graduate School for approval, and a copy is placed on file with the Academic Coordinator.

M.S. Program, Thesis Option: Students should submit a [Master's Degree Program of Study](#) to the Graduate School before the end of the second semester of graduate work, but no later than the semester before their Final Defense Exam. Students must complete a minimum of 30 hours of credit, including 21 hours of graded coursework, with at least 15 hours at the 500-level including: 2 hours of 'Research Orientation and Presentation' (Hort 508), 1 hour of 'Statewide Tour/Advanced Topics in Horticulture' (Hort

503), 1 hour of 'Graduate Seminar' (Hort 510), and 4 hours minimum of 'Master's Research, Thesis, and/or Examination' (Hort 700), with at least 2 hours of Hort 700 taken in the semester that the thesis is completed and defended in a final examination. Up to 6 hours of graded, non-graduate level coursework at the 300- or 400- level may be included if taken as a graduate student. Courses taken on a pass/fail basis may not be applied to fulfill program requirements. Except for approved extensions, the Graduate School policy is that the maximum time allowed for completion of an M.S. degree is 6 years from the beginning date of the earliest course applied toward the degree.

Ph.D. Program: Students should submit a [Doctoral Degree Program of Study](#) to the Graduate School by the end of the third semester of graduate work, but no later than the semester before their Preliminary Exam. Students must complete a minimum of 72 hours of credit, including 23 hours of graded coursework, with at least 15 hours at the 500-level level including: 2 hours of 'Research Orientation and Presentation' (Hort 508), 1 hour of 'Statewide Tour/Advanced Topics in Horticulture' (Hort 503), 1 hour of 'Graduate Seminar' (Hort 510), and 20 hours minimum of 'Doctoral Research, Thesis, and/or Examination' (Hort 800), with at least 2 hours of Hort 800 taken in the semester that the dissertation is completed and defended in a final examination. Up to 9 hours of graded, non-graduate coursework at the 300- or 400-level may be included. Courses taken on a pass/fail basis may not be applied to fulfill program requirements. Except for approved extensions, the Graduate School policy is that the maximum time allowed for completion of an doctoral degree is 10 years from the beginning date of the earliest course applied toward the degree, with a 3-year time limit from the semester of completion of the preliminary exam until degree completion.

Graduate Minor in Horticulture

The Minor in Horticulture for doctoral students in other graduate programs at WSU requires that at least one member of the student's Faculty Advisory Committee be a member of the Horticulture Graduate Faculty. The Program of Study must include 12 hours of graded graduate credits earned at WSU, with 6 hours of those credits being Hort 500-level, in addition to 1 hour of Hort 510, Graduate Seminar, presented near the conclusion of the student's graduate program. The graduate student must also attend at least one semester of Hort 509, Seminar, per academic year, and is strongly encouraged to participate in the statewide tour for Horticulture graduate students. The Program of Study, indicating the Minor in Horticulture, must be approved by the Horticulture Department Chair. The Horticulture Graduate Faculty member on the student's Advisory Committee will determine if there are horticultural research components that are required to fulfill the Graduate Minor in Horticulture and if oral and/or written examination questions, as outlined by the Graduate School, are applicable. A written statement outlining these requirements, signed by the graduate student, the Horticulture Faculty member, and the Department Chair will be filed with the Academic Coordinator.

For additional information on approved coursework for either M.S. or Ph.D. degrees, see the current [Graduate School Policies and Procedures Manual](#). Every effort should be made to prepare the Graduate Program of Study so that they can be carried to completion as initially submitted; however, because situations, interests, and/or courses change, provisions have been made to allow for amending Programs of Study, subject to the approval of the student's Faculty Advisory Committee and the Department Chair. See this Graduate School [website](#) for Change of Program, Committee Change, and Committee Substitution forms. All changes are subject to review and approval by the Graduate School.

Transfer Credits

With the approval of a graduate student's Faculty Advisory Committee and the Graduate School, graded graduate-level coursework taken toward a Master's degree at other accredited institutions of higher education, with a grade of B or higher, may be applied to the Doctoral Program of Study in Horticulture at WSU. However, graded graduate-level coursework taken toward a completed Master's degree at other accredited institutions may NOT be used toward a M.S. Horticulture degree at WSU. Graded graduate-level course work (with a grade of B or higher) taken as a graduate student, but not taken towards a completed graduate degree, may be used toward a M.S. degree or a Ph.D. degree at WSU with the

approval of the student's Faculty Advisory Committee and Department Chair. Students intending to list transfer credits on their Program of Study will need to submit to the Graduate School all official transcripts from colleges or universities showing such credits. In all transfer cases, the number of credit hours that can be transferred and listed on the Program of Study is limited to no more than half of the total graded course credits, excluding the required 1 credit hour of Hort 510 (Graduate Seminar). Transfer credits are subject to the usual time restrictions for M.S. or Ph.D. degrees, that is, credits cannot be more than 6-years-old for a M.S. and 10-years-old for a Ph.D. at the time of graduation. For further details on transfer credits, see the Graduate School's Policies and Procedures Manual (Chapter 6, Section G.2.e.)

Statewide Tour

To provide graduate students with an overview of the breadth of our departmental resources and the diverse horticultural industries in the state and to acquaint students with our statewide WSU faculty, staff, and graduate students, all incoming graduate students are required to attend the Statewide Tour at their earliest opportunity. The tour occurs sometime during the summer break, between the Spring and Fall semesters. Students must enroll for 1 credit of Hort 503, Advanced Topics in Horticulture, in the Fall semester following the summer in which they participate in the tour. Students who complete a M.S. degree in our department and enroll in our doctoral program may be invited (but not required) to attend the tour a second time.

Seminars

All graduate students are expected to attend all Horticulture seminars whenever they have no class conflicts, including those scheduled outside of the regular seminar series. Students residing at off-campus locations are expected to participate in the Horticulture seminars via distance delivery technology and to attend seminars given at their respective stations whenever possible. While working toward a graduate degree in Horticulture, full-time students are required to register for either Hort 509 or Hort 510 every Fall and Spring semester that they don't have a course conflict. Most often students will register for Hort 509, graded S/F. During the semesters in which a graduate student will be presenting a final results seminar, they should register for Hort 510 (Graduate Seminar), which is graded, instead of Hort 509. The schedule of Horticulture seminars can be found at this [website](#).

Both M.S. and Ph.D. candidates are required to present **two seminars** during their Horticulture graduate program. The intent of this requirement is to: 1) provide experience in presenting research seminars in particular and in public speaking generally, 2) encourage prompt consideration and development of a research topic, and 3) provide opportunities to inform Horticulture faculty, staff, and graduate students of their research activities.

The first seminar presentation will be a proposal presentation completed through the Hort 508 expo. This is a required class and presentations will be graded. MS students should present their first seminar/proposal presentation before the end of their second semester at WSU, while Ph.D. students should present before the end of their third semester.

The second seminar presentation, which will be graded and presented as part of Hort 510, will summarize their research project's results and implications. It should be presented near the time of their final thesis/dissertation defense, including on the same day but just prior to their final defense exam, during the regularly scheduled seminar time, or at an appropriate time before the final exam. Students must schedule this final Hort 510 seminar through the Academic Coordinator. No more than two final defense seminars will be scheduled on the same day, and none may be scheduled concurrently. These Hort 510 seminars are evaluated by all attending faculty, staff, and graduate students.

Students normally register for Hort 510 during the final semester of their graduate program in Horticulture. If they are unable to complete the thesis during the semester in which they have registered for Hort 510, they should still present their seminar as scheduled. Students should not request a grade of Incomplete (I) unless circumstances beyond their control, such as illness, occur. If a student presents a seminar more than a month before their final defense, the student's Major Advisor and Faculty Advisory Committee will

determine whether the student should present an additional seminar at the beginning of the defense exam.

THESIS AND SPECIAL PROBLEMS RESEARCH

Degree Options

All candidates for a graduate degree in Horticulture shall include some type of research in their graduate program. The nature of the research is typically individualized, based on the needs of the student and the Major Advisor, and will be performed as part of one of the following degree options:

M.S. Thesis Option: Students register for a minimum of 1 credit hour of Hort 700 (Master's Research) during each semester of enrollment. Hort 700 requires that a thesis be submitted to the student's Major Advisor, Faculty Advisory Committee, the Department, and the Graduate School.

Ph.D. Dissertation Research: Students sign up for a minimum of 1 credit hour of Hort 800 (Doctoral Research) each semester of enrollment. Hort 800 requires that a dissertation be submitted to the student's Major Advisor, Faculty Advisory Committee, the Department, and the Graduate School.

Research Proposals

In addition to the Graduate Program of Study, all Horticulture graduate students are required to complete a written research proposal that is thoroughly reviewed by their Faculty Advisory Committee, **prior to the end of their first year of study**. The rationale for writing a research proposal, besides giving students the opportunity to think in depth about their specific research project, is to gain experience in an essential activity of a professional academic or industry career, that is, requesting grant or industry funding for your research ideas, or writing an academic paper that concisely describes your research. Generally, research proposals should be **8-12 pages in length** and contain: 1) a clear justification for the research project, along with potential short- and long-term impacts, 2) a literature review of background publications that are relevant to the research project, 3) a clear statement of the project's objectives and hypothesis(es) that will be tested, 4) the experimental design that is intended to accomplish the objectives and test those hypothesis(es), and 5) the materials and methods that will be used. The latter should include a discussion of procedures to be followed, an estimate of facilities and equipment that will be needed, and if so required by the Faculty Advisory Committee, an estimate of the time and costs necessary to conduct the research. All members of the Faculty Advisory Committee should sign and date the cover page of the research proposal to signify approval. An electronic copy of the signed and dated proposal should be provided to all committee members by the student.

The research proposal aids the student in clarifying specific goals of his/her research, serves as a focus for advice and suggestions from their Faculty Advisory Committee members, and helps prepare the student for presenting an oral research proposal seminar. Every effort should be made to prepare the research proposal so that it can be carried to completion as initially written; however, this document should be viewed as a guide, not a contract, and should be placed within the context of the program's research priorities. Research results and opportunities cannot always be predicted, and students must be prepared to be flexible in terms of committee expectations to get the most from their graduate education. If the research proposal cannot be followed as written, the student's Faculty Advisory Committee may require that the student revise the proposal, but the Department does not require that a new proposal be written.

Expenses

Expenses involved in the conduct of research and availability of equipment should be decided upon at the time of approval of the thesis problem. The Department, through the major advisor, may pay for certain costs incurred during the course of the research.

Students are responsible for costs involved in typing and graphic design needed in the development of their thesis, thesis reproduction costs, and the binding of copies for their Major Advisor, themselves, and friends and families.

Research Involving Animal or Human Subjects, Certain Biological Materials, or Radioactive Materials or Machines

All projects involving animal or human subjects, certain biological materials, or radioactive sources must be reviewed and approved by WSU's [Institutional Animal Care and Use Committee](#) (IACUC), [Institutional Review Board](#) (IRB), [Institutional Biosafety Committee](#) (IBC), and [Radiation Safety Committee](#) (RSC), respectively, before the research is conducted. For example, if people will taste samples of a product or if people will be asked to fill out a questionnaire or survey, then the project must be reviewed and approved by the IRB before any data are collected. Or, if any recombinant DNA, human fluids or tissues, or other infectious agents related research involving biohazardous materials is anticipated, the prior approval from the IBC is required. For use of radioactive materials and radiation-producing machines, then prior approval by RSC is necessary. The approval process may require a few weeks to a few months, depending on the complexity of the project and the invasiveness of the activities, so plan ahead. For more information on these approval processes, contact the [Office of Research Assurances](#) or the [Radiation Safety Office](#).

MAJOR EXAMS

Ph.D. Preliminary Examination

A preliminary examination is required of each doctoral student for advancement to candidacy for the doctoral degree. The preliminary examination is designed to determine the fitness of the student for pursuing a doctoral program in the field in which a degree is desired. The examination is intended to cover both major and minor disciplines (if a minor is declared). For doctoral students in other graduate programs (e.g. MPS) who are pursuing a Minor in Horticulture, a portion of the preliminary exam will cover horticultural topics.

Before the end of the second year of graduate work after admission into the Horticulture doctoral program or soon after the majority of course requirements have been fulfilled, students should complete the preliminary examination. In Horticulture, this examination involves both a program-required written examination and a Graduate School-required oral examination, which follows guidelines established by the Graduate School in the [Graduate School Policies and Procedures Manual](#). The written examination, administered by the student's Major Advisor, generally consists of separate examinations from each member of the student's Advisory Committee, including the Major Advisor. The conditions for each set of written exams (i.e., what external resources are permitted, the length of the exam, etc.) are determined by the individual Advisory Committee member and may differ among the committee members (see below). The oral examination follows the written portion of the preliminary exam. "There is no time limit for either the written or oral portions of the examination, but all aspects of the examination must be completed within 30 days from the beginning." (WSU Graduate School Policies & Procedures Manual 2014-2015, p. 76). The examining committee for the oral examination is made up of the student's Faculty Advisory Committee and may include other Graduate Faculty in Horticulture.

The student is responsible for scheduling both the written and oral parts of the preliminary examination. The oral exam should be scheduled through the Graduate School using the [Preliminary Examination Scheduling Form](#) or [Interim Examination Scheduling Form for Preliminary Exams](#) (in exceptional circumstances) but only: 1) after the Program of Study has been approved, 2) after all or a substantial portion of the required coursework has been completed, and 3) when the student and their Major Advisor think the student is prepared for the exam. The student must be registered for a minimum of 2 hours of Hort 800 as a regular graduate student at the beginning of the semester or summer session in which the exam is to be taken, and have at least a cumulative 3.0 GPA and a 3.0 GPA or higher on the program

courses already taken before the exam may be scheduled. Students will be allowed up to 30 calendar days from the end of the written examination until the completion of the oral examination. Students should work with their Major Advisor to determine the complete schedule for both the written and oral portions of the exam before beginning any portion of the exam.

Examination questions include, but are not limited to, topics covered in the coursework outlined in the student's Program of Study and coursework prerequisites to the required coursework. Successful completion of the coursework outlined in the Program of Study does not guarantee successful passage of the written or oral examinations. Unsatisfactory performance by a student on the written portion of the preliminary exam may result in postponement of the oral exam and/or affect the decision of individual Faculty Advisory Committee members regarding satisfactory or unsatisfactory completion of the entire preliminary exam.

Procedures for Preliminary Examinations

1. **Student** consults with their Major Advisor and members of their Faculty Advisory Committee to determine dates and times for both the written and oral exams. (Note: Preliminary exams are normally not allowed between semesters or during final exam weeks, except under extenuating circumstances - see next procedure.)
2. **Student** obtains and completes [Preliminary Examination Scheduling Form \(or Interim Examination Scheduling Form for Preliminary Exams—for extenuating circumstances only\)](#) from the Graduate School, obtaining signatures from all members of their Faculty Advisory Committee. The student then submits the completed form to the Academic Coordinator at WSU-Pullman (Deb Marsh, Johnson Hall 131, marshdj@wsu.edu). (**Note: The Program of Study must be on file prior to scheduling the preliminary exam.**)
3. The **Academic Coordinator** obtains the signature of the Department Chair on the scheduling form, places a copy in the student's file, and sends the completed form to the Graduate School. (**Note: The Preliminary Examination Scheduling Form must be returned to the Graduate School at least 10 working days before the exam begins.**) The Academic Coordinator will also post an electronic copy of the official Announcement of Preliminary Examination (oral exam information only) to all Horticulture faculty via email.
4. The **Major Advisor** requests written questions from each member of the student's Faculty Advisory Committee, indicating the date questions are due back to him/her. (**Note: Allow at least one week for questions to be provided by the Faculty Advisory Committee members.**)
5. **Faculty Advisory Committee** members submit questions with complete examination instructions (see Written Preliminary Exam Options below) to the Major Advisor. The Major Advisor reviews and may discuss the questions with each member of the Faculty Advisory Committee to assure their appropriateness and that there is no duplication.
6. **Major Advisor**, or any designated staff that the Major Advisor wishes to appoint in their place, coordinates scheduling of the written exam with the student, including the venue for the exam.
7. **Major Advisor**, or designated staff member, administers the written questions, one set at a time from each Faculty Advisory Committee member, according to the exam option instructions provided with the questions. The answers to the questions are due back to the Major Advisor or designated staff at the time designated. (**Note: The designated staff member proctoring the exam should return the answers to the Major Advisor.**)
8. **Major Advisor** provides a copy of the questions and answers to the student and routes the answers to the appropriate Faculty Advisory Committee member after each set of questions is completed. The Major Advisor should provide an electronic copy of the questions and answers to the Academic Coordinator, who will place them in the student's file.

9. **Faculty Advisory Committee** members, after grading the answers to their questions as Satisfactory (S) or Unsatisfactory (U), return a copy of their evaluation of the answers to the Major Advisor and to the Academic Coordinator, who files them in the student's file. Each committee member should grade the answers to their questions in a timely manner, but in not more than 5 working days.
10. **Major Advisor** discusses the results of the written exam with the student prior to the scheduled oral exam. If the student satisfactorily passes the questions on the written exam from all Faculty Advisory Committee members, he/she may then proceed to the scheduled oral exam. However, if the student is judged to have performed unsatisfactorily overall on a set of questions from one or more members of the Advisory Committee, the student must cancel their oral preliminary exam and prepare for a reexamination. In the case of an unsatisfactory written exam, the student will be given sufficient time, but not more than 90 calendar days, to prepare for reexamination on that (those) portion(s) of the written exam in which he/she performed unsatisfactorily. The reexamination must be completed within the 90-day period. For the reexamination, the questions upon which the student is being reexamined should not be identical to the questions that the student performed unsatisfactorily on during the first exam. If the student performs satisfactory on the reexamination, then he/she should re-schedule their oral preliminary exam. If the student performs unsatisfactorily on the second written exam, he/she will be either dropped from the Ph.D. program or given the option to continue for an M.S. degree instead. (Note: If the initial unsatisfactory written exam and the repeat exam span two semesters, the Major Advisor will give the student an "X" grade for HORT 800 (per WSU Academic Regulation 90j), rather than an "S" grade, in the semester in which the unsatisfactory written exam occurred. Upon successful completion of the repeated written exam, the Major Advisor will convert the "X" grade for HORT 800 to an "S" grade.)

Written Preliminary Examination: Options

Each Faculty Advisory Committee member submitting questions for a written preliminary exam will also submit instructions specifying, within each of the following sets of options, the conditions under which the exam should be administered. The number of questions in each set is unspecified as long as the complete set submitted by each committee member can reasonably be answered in the specified time. The details of the specific selected options (such as which computer may be used) should be discussed with the Major Advisor.

1. Exam Length Options:

- a. Up to 4 hours per examiner, to begin at the beginning of the work day and end by noon or to begin after lunch and end by the end of the work day,
- b. Up to 8 hours per examiner, to begin at the beginning of the workday and end by the end of the work day.

2. Exam Proctoring Options:

The exam may be proctored by the Major Advisor, a designated staff member, or the member of the Faculty Advisory Committee under the following conditions:

- a. The student may bring something to drink and eat to the exam.
- b. If the student needs to leave the room during the exam, all items brought into the room must be left there during the break, and no additional materials may be brought back into the room.
- c. The proctor will notify the student 15 minutes before the end of the exam period. If the student completes the exam before the exam period is over, the student should return the answers immediately to the exam monitor.
- d. No electronic communications devices (i.e. cell phone, tablet or computer with Internet access) should be available to the student, unless designated by the examining faculty member.

3. Exam Recording Options:

- a. Student brings nothing to the exam; the exam proctor provides paper, pencils, pens, and erasers, or
- b. Examiner-approved computer, data storage device, and/or printer.

4. Exam Resources Options:

- a. No resources other than the student's own knowledge (i.e. closed book exam),
- b. Resources, such as books or articles, specifically listed and provided by the examining faculty member,
- c. Unlimited non-human resources (this might mean going to the library), or
- d. Unlimited human and non-human resources (this might include discussing the questions with other people).

Oral Preliminary Examination

The content and conduct of the oral preliminary examination is the responsibility of the Horticulture Graduate Faculty and should be administered by the student's Major Advisor. The Major Advisor is responsible for conducting a fair and thorough oral exam and for affording a reasonable opportunity for all members of the student's Faculty Advisory Committee to question the student. The oral preliminary examination should be between 2 and 4 hours in duration (although Graduate School policy states there is no time limit for either the written or oral portions of the exam) and must be completed within 30 days from the beginning of the written examinations.

All members of the student's Faculty Advisory Committee must be present at the oral examination, which must be held during regular working hours either on the Pullman or branch campuses, Research and Extension Centers, or by videoconference, if not all members of the Faculty Advisory Committee can be physically present. If held over videoconference, at least two Faculty Advisory Committee members must be physically present with the student. At the conclusion of the oral exam, the student's total performance on the exam should be discussed by the attending Graduate Faculty using the rubric in the [Preliminary Examination Assessment](#) form, in which the candidate is evaluated for:

1. Demonstrates comprehensive understanding of the primary literature relevant to the discipline,
2. Demonstrates ability to synthesize knowledge from courses and primary literature, and apply this knowledge to a novel problem or question,
3. Demonstrates ability to apply the principles and technical knowledge of horticultural science and related disciplines to a novel problem or question,
4. Demonstrates a broad understanding of the scientific principles of related disciplines relevant to horticulture, and
5. Demonstrates comprehensive understanding of the scientific problems, principles, and methodologies related horticultural science.

All members of the student's Faculty Advisory Committee must vote to pass or fail. Ballots must be cast on the basis of the entire exam, including both written and oral. Any other members of the Horticulture Graduate Faculty or minor program may be present, ask questions, but may not vote, except with prior permission of the Department Chair of the Horticulture Graduate Program. **In any case, faculty wishing to vote must be in attendance during all of the examination and must have participated in the assessment of the student's examination work.** If a faculty member who wishes to vote must leave the room or the online session during the examination or balloting discussion, the examination or discussion is to be recessed until said member returns. The student shall pass if a minimum of three-fourths of those voting so indicate (if only 3 voting examiners, 3 passing votes are required to pass). In situations in which faculty participate over videoconference, **actual signed ballots** must be sent to the Major Advisor immediately following the exam via confidential fax or via email as a PDF file. No other format is acceptable to the Graduate School. The Major Advisor should include these ballots in the packet sent to the Graduate School.

In accordance with Graduate School policy, in the event of a failed oral preliminary examination, the student can be re-examined only one more time. At least 3 months must elapse between a failed oral exam and re-examination. A minimum of 4 months must elapse between the successful completion of the prelim exam and scheduling of a final, thesis defense exam. A member of the Graduate Mentor Academy will be appointed by the Graduate School and must be present for a re-examination. The entire committee must be present and vote. A student who has failed two preliminary examinations may not become a

candidate for the doctorate and the student's enrollment in the Graduate School will be terminated. The only exception to this re-examination policy is if a member of the Graduate Mentor Academy (appointed by the Graduate School) presided over the student's first exam and agrees that a re-examination is not an appropriate disposition of the case.

Upon successful completion of the preliminary exam, the candidate should apply for the ["All But Dissertation" \(ABD\) Waiver](#) offered by the Graduate School. This program offers numerous benefits for faculty and students, but most specifically, it encourages the use of extramural grants in support of students seeking their doctoral degrees. Students will be reminded of this opportunity by the Academic Coordinator.

Thesis/Dissertation Defense: Final Oral Examination for M.S. and Ph.D. Students

Passing the final defense examination of the graduate student's thesis/dissertation is the concluding step in the successful completion of the Horticulture Graduate Program. Decisions on the format and content of the thesis/dissertation must be approved by the student's Faculty Advisory Committee and should be discussed with them before beginning to prepare it. Note that the student should also work with their Major Advisor to ensure a thoroughly reviewed and revised thesis/dissertation is sent to the Faculty Advisory Committee members for review prior to the defense.

It is increasingly important for graduates to prepare, submit, and publish research articles in peer-reviewed journals and professional publications (e.g. Extension Manuals and Technical Bulletins). To achieve this goal, the chapters of the thesis/dissertation should be prepared as research manuscripts or professional publications using the style of the journal(s) or publication(s) to which they will be submitted. An introductory chapter, often as literature review, and a final chapter, including conclusions and future research directions from the overall body of research performed by the student, may also be included. Each manuscript contained in the thesis must be internally consistent in form, and the overall format must still comply with the Graduate School's required Dissertation and Thesis Guidelines (format), including the overall title, abstract, signature, and table of contents pages. If possible, some or all of the chapters of the thesis/dissertation should be submitted to the targeted journal or publication for peer review prior to or soon after completion of the graduate degree program. Students should seek guidance at an early stage from their Major Advisor and Faculty Advisory Committee regarding the role of co-authors for chapters developed as manuscripts. Information on authorship determination should be reviewed at [Guidelines for authorship determination for manuscripts](#).

Note: "WSU participates in the UMI Dissertation Publishing program and submits all dissertations to this organization for publication upon acceptance. No material in the dissertation may be restricted in any way; the dissertation must be made available through the Washington State Libraries and UMI for inspection by any interested parties. If copyrighted material is included in the dissertation, written permission must be obtained from the copyright owner to reproduce the material in the dissertation. Such written permission must be submitted to the Graduate School at final acceptance." [WSU Graduate School Policies & Procedures Manual](#)

When approaching the completion of the Horticulture graduate degree program, students should consult the Graduate School's current academic year Deadlines and Procedures for Graduation for [M.S.](#) or [Ph.D.](#) notice to be certain that they are aware of the dates of four critical deadlines. These deadlines are set for every semester and include:

1. Last date to submit an [Application for Degree](#) (All fees, including the graduation fee, the publishing/microfilming fee, and the optional copyright fee, must be paid before online submission of the *Application for Degree* and prior to the final defense.),
2. Last date to submit a [Dissertation/Thesis Acceptance/Final Examination Scheduling Form](#) (or [Interim Examination Scheduling Form for Final Exams](#)—for extenuating circumstances only) (no less than 10 working days prior to the final exam),
3. Last possible date to conduct a final thesis defense exam, and
4. Last date to submit the final thesis or dissertation (within 5 working days after a successful final defense exam).

These deadlines are the student's responsibility and prior approval must be obtained for any extenuating circumstances. Extensions will NOT be given due to poor planning or oversight on the part of the student, i.e., if you miss a deadline it may delay your graduation and increase your expenses.

All M.S. and Ph.D. candidates must defend their thesis or dissertation. This defense usually consists of a seminar immediately prior to the oral defense exam. The seminar is open to the public and questions to the candidate are encouraged. The thesis defense oral exam is restricted to the Faculty Advisory Committee and any other WSU Graduate Faculty, regardless of discipline. All members of the candidate's Faculty Advisory Committee must vote to pass or fail, and any other member the Graduate Faculty in attendance for the entire exam may also vote. The exam should not exceed two and one-half hours, including any seminar or presentation by the student. The thesis defense will be evaluated and discussed by the attending Graduate Faculty using the rubric in the [Thesis/Dissertation Defense Examination Assessment form](#), in which the candidate is evaluated for:

1. Review the literature in a manner that demonstrates comprehensive knowledge of previous and current research in the field of study,
2. Identification of a viable question within the field of study and posing a worthwhile hypothesis or problem related to the question,
3. Discussion of support for hypothesis or solution to the problem in a manner that effectively documents the contribution of research to the area of study,
4. Design and implementation of appropriate research experiments to test the hypothesis or solve the problem,
5. Appropriate analysis and interpretation of research data,
6. Demonstration of sufficient knowledge of appropriate concepts, theories, and emerging methodologies in horticultural science,
7. Demonstration of qualities for independent, self-motivated research with the ability to recognize problems in the field of study and formulate solution to those problems, and
8. Demonstration of ability to effectively communicate at different levels the results of the research in written, graphic, and verbal modes.

The examining committee shall include the doctoral committee and any other members of the faculty in attendance. The chair of the student's committee will chair the final examination and be responsible for its conduct. A member of the student's committee (generally the committee chair) will be appointed by the Graduate School to serve as the Graduate School liaison regarding the examination process (balloting, etc.).

The exam must be held in an academic setting during regular academic sessions (i.e. Fall or Spring semesters, or Summer Session) and working hours either on the Pullman or branch campuses, or Research and Extension Centers. The exam should be transmitted by videoconference to all requesting sites. When scheduling from off-campus sites, the student needs to schedule with IT staff at the off-campus site. Students in Pullman scheduling videoconference to off-campus sites need do so at the Academic Media Services scheduling [website](#). If the exam is held by videoconference, at least one Faculty Advisory Committee members must be physically present with the student. The final examination must not exceed 2.5 hours (not including the student's seminar presentation).

All final examinations are public, and any faculty member may attend those of interest to them. Although members of the public may attend final examinations, only faculty members may ask questions and vote, assuming that they have participated in the assessment of the student's work.

All members of the committee must be in attendance during all of the examination and vote. If a faculty member wishes to leave the room or the online session during the examination or balloting discussion, the examination or discussion is to be recessed until said member returns.

The balloting discussion should include the student's accomplishment of learning outcomes, as stated in the [Thesis/Dissertation Defense Examination Assessment rubric](#), which should be completed by each member of the Faculty Advisory Committee. The student shall pass if a minimum of three-fourths of those

voting so indicate (if only 3 voting examiners, 3 passing votes are required to pass). In situations in which faculty participate over videoconference, **actual signed ballots** must be sent to the Major Advisor immediately following the exam via confidential fax or via email as a PDF file. No other format is acceptable to the Graduate School. The Major Advisor should include these ballots in the packet sent to the Graduate School.

Four weeks or more prior to the thesis defense:

The student must present a **complete draft of the thesis that has been approved by the Major Advisor** to all Faculty Advisory Committee members for review. The student should consult with each committee member to determine how much review time they require and their availability to review the draft at the time the student intends to submit it to them. **The student may not be able to complete the next step (i.e. exam scheduling) as planned if Faculty Advisory Committee members have had insufficient time to review and suggest changes to the thesis, and to approve those changes.**

The student should also see the Academic Coordinator (Johnson Hall 131) to schedule a date, time and exam location, all of which must be stated on the approved scheduling form. **No final seminars and exams may be scheduled concurrently in the Department and no more than two may be scheduled on the same day.** Priority will be given to the first scheduled requests.

At least 10 working days (i.e., 2 weeks) prior to the dissertation/thesis defense:

A signed copy of the [Dissertation/Thesis Acceptance/Final Examination Scheduling Form](#), signed by each of the student's Faculty Advisory Committee members and the Department Chair, must be returned to the Academic Coordinator who obtains the Department Chair's signature and submits the completed form to the Graduate School.

IMPORTANT NOTE: By signing the *Dissertation/Thesis Acceptance/Final Examination Scheduling Form* each Faculty Advisory Committee member agrees that a "typed (or electronic) dissertation, suitable in format and content for submission to the Library has been given their approval." This means that each committee member has reviewed a complete version of the student's dissertation or thesis, and that it requires only minor revisions that could be made within a five-day period.

Students should consult with their Major Advisor and Faculty Advisory Committee to determine the specific style acceptable for their dissertation/thesis. A standard style for the body of the dissertation/thesis has not been agreed upon by faculty across academic disciplines, and therefore, the Graduate School does not have an established style requirement. Therefore, use the particular style manual preferred by your Faculty Advisory Committee. Since many formats are in use, one should be chosen and followed consistently.

A copy (digital is acceptable) of the dissertation/thesis must accompany the *Final Exam Scheduling Form* for preliminary approval of format only, not content. This copy is immediately returned to the student. See the Graduate School's detailed [Dissertation and Thesis Guidelines](#) for formatting requirements. Formatting requirements pertain to preliminary pages (title, signature, abstract, acknowledgments, table of contents, lists of tables and figures, etc.), margins, and page numbering. Verification that the student has received approval for use of animal or human subjects in research is required **before** scheduling the final examination. Attach a copy of the approval form to the *Final Exam Scheduling Form*.

All fees must be paid [i.e., graduation fee (all students), microfilming fee (all doctoral candidates), and copyright fee (available for doctoral candidates only)] before submitting the [Application for Degree](#), which must be on file before scheduling the final exam.

At least 5 working days prior to the dissertation/thesis defense:

Copies of the dissertation/thesis must be presented to each member of the student's Faculty Advisory Committee. Additionally, provide a digital copy to the Academic Coordinator which will be shared via Sharepoint and serve as a public copy for review by the Horticulture Graduate Faculty, and other department students and staff upon request.

NB: Failure to comply with these deadlines will require re-scheduling the exam, and possibly extra expenses.

(Note: The department maintains a library housing all Horticulture theses and dissertations, which can be checked out for student use by the Horticulture office staff.)

Within 5 working days following completion of the dissertation/thesis defense:

Directions are provided here for students to upload their title page, abstract page(s), and signature page into myWSU for electronic approval by their committee: [Cotton Page e-Approval Guide: Students](#)
Once that is completed, the Johnson Hall Graduate Center will be notified and they will trigger the electronic routing process through your committee for approval (in lieu of wet ink signatures)..

Upload final thesis/dissertation as appropriate:

- THESIS: Upload PDF to the WSU Library via www.dissertations.wsu.edu
- DISSERTATION: Update your ProQuest submission with your revised PDF - do not create a new ProQuest submission.

All students must submit to the Graduate School a completed [Hold Harmless Agreement/Copyright Acknowledgement](#).

DOCTORAL ONLY: Completed the [Survey of Earned Doctorates \(SED\)](#) online and submit a printed completion certificate to the Graduate School.

GRADUATE ASSISTANTSHIPS

Assignment of Graduate Assistantship Appointments

All state-funded, departmental Graduate Research Assistant and Teaching Assistant appointments shall be made by the Department Chair on the basis of student qualifications and recommendations made by the Horticulture Graduate Executive Committee. Current students, with the support of their Major Advisors, may request that changes in their assistantship status be considered by writing to the Department Chair or Graduate Coordinator. For example, a student with no assistantship appointment may request consideration for a future semester, or a student with a Teaching Assistant appointment may request reassignment to a Research Assistant appointment. Such requests will be considered along with requests from incoming students and will be assigned on the basis of merit and departmental research and teaching priorities and commitments. Departmental Research Assistant appointments are usually reserved only for Ph.D. students. Foreign students may be eligible for departmental (not grant funded) Research Assistant and Teaching Assistant appointment after at least one year's enrollment at WSU. All students supported on departmental assistantships must reside in Washington State.

Reappointment or Termination of Graduate Assistantships

For most students, the length of the appointment to a graduate assistantship is determined at the time of their initial appointment in the letter of offer of admission. Students with graduate assistantships are expected to perform their assistantship duties in a professional manner, while at the same time maintaining acceptable progress toward their graduate degrees. Unusual circumstances, including lack of performance or severe budget constraints, could result in termination of appointment to a graduate assistantship.

M.S. students: The maximum time period students can be supported with state-funded assistantships is usually restricted to two years.

Ph.D. students: The maximum time period students can be supported with state-funded assistantships is usually restricted to four years.

Step Rates

Graduate students making good progress towards their graduate degrees will be financially supported through research and/or teaching assistantships. This support may be provided by the student's advisor(s), other committee members, a graduate program department, or other WSU departments. Note that apart from agreements made in written offer letters, there is no promise of financial support.

Graduate assistantships in the Department of Horticulture provide the following minimum pay levels effective Fall 2021. More pay may be available depending on the financial support and circumstances provided by an advisor. For example, additional allowances for fees, housing, summer support above 0.5 FTE, all but dissertation status, and/or other achievements may be awarded based on availability of funds.

- For 0.5 FTE M.S. Assistantships: Step 42 plus equivalent (0.5 FTE) summer pay @ \$1,909/mo
- For 0.5 FTE Ph.D. Assistantships: Step 47 plus equivalent (0.5 FTE) summer pay @ \$2,009/mo

Graduate Assistantship Duties

Assignment of **assistantship duties** will be made by the Department Chair each semester on the basis of student qualifications and performance, department priorities, and recommendations by the Graduate Executive Committee. In most cases, the faculty member with whom the student will be working as a Research Assistant will also be the student's Major Advisor and will determine the appropriate duties. In some cases, the student will be assigned activities that may also relate to their graduate research project, while in other cases, the student may also work on projects that are unrelated to their graduate work.

Tentative Teaching Assistant assignments are considered on the basis of course and faculty needs, and graduate students' schedules, skills and interests. In some cases, these tentative assignments must be changed due to scheduling conflicts, unexpected changes in class enrollments, or other unanticipated factors.

Summer Expectations

Students on academic year support generally also receive summer support (either hourly or summer assistantship). Standard practice is for graduate students in Horticulture to spend their summer session on their graduate research project(s) and supporting other research projects within their Faculty Advisor's program. Expectations for the summer session should be discussed between the student and Faculty Advisor.

Credit Loads for Graduate Teaching and Research Assistants

The Graduate School requires students on graduate assistantship appointments to enroll for a minimum of 10 credit hours every fall and spring semester, one hour of which must be either Hort 700 (M.S. students) or Hort 800 (Ph.D. students) to track Major Advisor effort. A normal credit load is 10-12 hours, supplemented with Hort 700 or Hort 800 research credits.

Establishing Residency

Students on graduate assistantships, except foreign students, are expected to apply for residency in the State of Washington. This helps to defray the high costs and limited number of non-resident tuition waivers. While residency cannot be established until the end of your first full year in Washington State, students must begin compiling their documentation, such as, copies of housing lease and rent receipts, utility bills, etc., **as soon as they arrive at WSU. If the student owns a car, a Washington driver's**

license and vehicle registration must be obtained immediately upon arrival. If you live out of state for the summer, you will not be able to establish residency. See the [Residency Information](#) requirements at the Office of the Registrar.

Annual Leave

There is no policy nor requirement for graduate student annual leave. A general guideline is that students should have a minimum of 2 weeks off plus holidays, but this may be customized for individual student circumstances (e.g., if a student's family lives overseas, then a 4-week winter holiday break may be agreeable between the student and advisor). Discuss annual leave with your advisor and in situations where annual leave will be requested, aim to make this request at least two weeks prior to the requested time off.

Payroll Deduction of Tuition and Mandatory Fees

For details on how to arrange for automatic deduction of tuition and fees from your paychecks, see the Academic Coordinator (Johnson Hall 131) for current information.

Certification of Assistantship Duties

Tuition waivers associated with an assistantship appointment are contingent upon the following factors: 1) remaining enrolled full-time during the period of appointment; 2) maintaining a 3.0 cumulative GPA during the appointment (or approved exception to policy), and 3) meeting the service requirement of an average of 20 hours per week for a 0.5 FTE appointment as scheduled by your department/supervisor (based on hours required for partial FTE appointment). This certification is completed annually by way of the Graduate Student Annual Review form. For graduating students, this may alternatively be done by way of the Post-Graduate Information form (*in lieu* of the Annual Review form).

SAFETY

Safety at WSU is regulated by the [Washington State Department of Labor and Industries](#) and the US [Occupational Safety and Health Administration](#) (OSHA), through WSU [Environmental Health and Safety](#). A safe and healthy working environment at WSU is to be maintained at all times.

It is the responsibility of each graduate student to become familiar with safety policies and to follow safe procedures. Departmental policies and procedures regarding safety are detailed in the WSU Safety Policies and Procedures Manual (SPPM) available at the [Office of Procedures, Records and Forms](#), while policies and procedures specific to individual labs are detailed in the Laboratory Safety Manual located in each lab. Information regarding physical and health hazards, entry routes, permissible exposure limits and precautions or controls for safe use, including emergency first aid procedures, and the name, address and telephone number of the chemical manufacturer or supplier for all chemicals is available on Material Safety Data Sheets (MSDS) located in the individual labs in which the chemicals are used. [Environmental Health and Safety](#) (EH&S) is also responsible for laboratory and workplace safety, public health and environmental issues, hazardous materials and wastes (except radioactive materials), and training. All disposals of hazardous chemical wastes must be made through EH&S's [Environmental Services](#).

There is a [College Safety Committee](#) in Pullman and at each off-campus site. Students located at branch campuses or Research and Extension Centers should consult their site's safety committee and the specific safety requirements at those locations. These safety committees serve as resources for all safety-related issues, except radioisotope use, which is handled by the WSU [Radiation Safety Office](#). Students are required to attend an informational safety meeting in their first year, and if using radioactive materials, must complete online [Radiation Safety Training](#) prior to their use. Greenhouse users on the Pullman campus must attend [Worker Protection Standard Training](#). This training is offered each semester

by the CAHNRS Plant Growth Facility Manager, [Dan Dreesmann](#) (509-335-5824). Many departmental employees have First Aid training. American Red Cross First Aid and CPR/AED classes are available to all graduate students through WSU [University Recreation](#).

Report all accidents and injuries, however minor, to the administrative office at your location and complete an electronic accident/illness [Incident Report Form](#).

SERVICES

Graduate and Professional Student Association

The [Graduate and Professional Student Association](#) (GPSA) is the representative body for graduate and professional students at WSU. Their offices are in CUB 308 and can be contacted at 509-335-9545. GPSA operates a number of programs that serve graduate and professional students. This includes the GPSC Study Center, which is a cost free service to graduate and professional students and features state of the art machines and printing services. GPSA also offers Travel and Registration Grants to aid in travel and registration costs associated with attending conferences and meetings. Students may also find use of GPSA Interlibrary Book Loan Program, free of cost.

Graduate Writing and Professional Center

The [Graduate and Professional Writing Center](#) (GPWC) is located in Smith CUE 403 (509-335-3413, gpwc@wsu.edu). GPWC assists graduate and professional students from all disciplines with all types of written communications from papers and publications that must be written as researchers, to syllabi and assignments students must prepare as teachers. The GPWC **does not offer proofreading or counseling services**.

Office of International Students and Scholars

The [WSU International Programs, Global Services](#) office, located in Bryan Hall 108 (509-335-1083, ip.globalservices@wsu.edu) assists incoming and current international students with information on their immigration status and visa matters, as well as non-academic matters such as understanding US culture and the academic system.

Campus Safety

Washington State University is committed to maintaining a safe environment for its faculty, staff, and students. Safety is the responsibility of every member of the campus community and individuals should know the appropriate actions to take when an emergency arises. Please go to for more information:

WSU Emergency Management web site: <http://oem.wsu.edu>

WSU Pullman Campus Safety Plan at: <http://safetyplan.wsu.edu>

WSU Tri-Cities Campus Safety Plan at: <http://www.tricity.wsu.edu/safetyplan/>

Cougar Health

Health care concerns can be addressed through Cougar Health Services. Information on services, making appointments, pharmacy, health promotion, insurance, and more can be accessed online at [Cougar Health Services](#). In addition, Counseling and Health Services are also available to students.

FACILITIES

Note: Most of the information contained in this section applies to graduate students while at the main campus in Pullman. Those students located at any of the branch campuses ([Spokane](#), [Tri-Cities](#), or

[Vancouver](#)), the [Irrigated Agriculture Research and Extension Center](#) (IAREC) in Prosser, the [Tree Fruit Research and Extension Center](#) (TFREC) in Wenatchee, the [Puyallup Research and Extension Center](#) (PREC), or the [Mount Vernon Research Center](#) (MVRC) should consult with administrative staff at those locations regarding available facilities.

Office Space

The Department will assign all graduate students a desk and office space (usually shared) at WSU-Pullman, with priority in the following order: 1) Teaching Assistants, 2) Research Assistants, and 3) all other graduate students. See the Administrative Assistant ([Ade Snider](#), 509-335-9502, Johnson Hall 149) regarding any questions about desk or office assignments. Any changes in desk or office assignments must have prior approval of the Administrative Assistant.

Computing Facilities

A computer and printer are available for graduate student use in Johnson Hall 29. A computer lab is also available within CAHNRS in Hulbert Hall 5, but classes have first priority on its use. Information Technology Service [Help Desk](#) also maintains a computer lab on the third floor of the Center for Undergraduate Education. Wireless access is available at most locations on the Pullman campus. Students at Research and Extension Centers and branch campuses should see the computer resource personnel at these locations for computing services.

Audio/Visual Presentation Equipment

Media presentation equipment, e.g., laptop computers and projectors, are available for student use. Consult with staff at each site for available equipment there. The student must pay for any consumable materials, unless their Major Advisor authorizes payment from their own project funds. Media equipment for loan or rental and a media lab is available at [Academic Media Services](#).

Laboratory Facilities

The individual faculty member assigned to each lab supervises their own facilities within federal, state and university guidelines and requirements. Check with the appropriate faculty member or lab supervisor before commencing work in or removing any items from any laboratory.

Cold Storage Rooms

A complex of cold storage rooms is located on the ground floor at the west end of Johnson Hall and on the first floor of Vogel Plant Bioscience building. A range of temperatures is available for research and teaching purposes. Check in the Main Office (Johnson Hall 149) to determine who supervises each cold storage room before placing materials in them. All materials must be labeled with the student's name, and dated. Periodically, these rooms are cleaned and organized, and all unlabeled materials are discarded.

Greenhouses, Growth Rooms, and Growth Chambers

Greenhouses and growth chambers are available in the [Plant Growth Facility](#) administered by the Agriculture Research Center in the College of Agricultural, Human, and Natural Resource Sciences, and also in the basement of Vogel Plant Biosciences. Before using the Plant Growth Facility, an orientation and Worker Protection Training is required. All requests for space and use of materials at the Plant Growth Facility must be preceded by an approved [Space Request Form](#) submitted to the Plant Growth Facilities Manager ([Dan Dreesmann](#), 509-335-5824) through your Major Advisor.

Field Research Facilities

Land and orchards are available for field research on the [R.B. Tukey Horticulture Orchard](#) located east of campus on Airport Road. Note that the Tukey Orchard is in transition to the Spillman Agronomy Farm

over the 2018-19 academic year. This farm is also used for teaching purposes. The farm is administered by the department's Farm Committee, with direct supervision by the Farm Manager ([Deb Pehrson](#), 509-335-6700). Graduate students should discuss field research plans with their Major Advisor and then must request land and/or orchard needs through the Farm Manager and the Farm Committee before March 1 each year by completing a [Farm Use Request Form](#).

The farm crew at the R.B. Tukey Horticulture Orchard usually performs general land preparation and routine maintenance operations. However, prior arrangement must be made, generally at the time the request for land space is made, for the actual care of the experimental area. The researcher must perform all practices directly involving the assigned experimental area, including treatment application and sample collection. Departmental tools and equipment are available for use by all members of the Department; however, they must be checked by the Farm Manager. All tools must be cleaned and returned in good working order to their proper place as soon as you have finished using them. If your research project calls for prolonged use of a particular tool, consult your Major Advisor regarding its possible purchase.

Land and perennial plantings of orchards, vineyards, and berry crops are available and administered at specific WSU Research Centers, including IAREC-Prosser, TFREC-Wenatchee, PREC-Puyallup, and NWREC-Mount Vernon. Graduate students expecting to conduct any of their research at these research centers should discuss plans with their Major Advisor and follow the established procedures at the respective center.

Additional land is available at the Central Ferry Station administered by the USDA-ARS Plant Introduction Station and at the Othello Research Unit for potato research. Land requests for the Othello Research Unit must be approved by the on-site farm manager as early as possible, preferably during the fall before planting. Land requests may also be made through the Prosser Farm Manager.

POLICIES

Keys

All offices and labs **must be kept locked** when unoccupied, because theft is a recurring problem on campus. The submaster key issued to graduate students allows access to the outside doors of Johnson Hall, individual offices, and some Department labs. Access to the Vogel Plant Biosciences building requires access with your [Cougar Card](#), and is given for graduate students on assistantships or upon request from the student's Major Advisor or the research project's Principal Investigator. In the Main Department Office (Johnson Hall 149) in Pullman you can acquire building and lab keys and have your Cougar Card programmed for access to the Vogel Plant Biosciences building. Keys to farm gates, cold rooms, etc. must be obtained separately. Farm gate keys require the Farm Manager's approval. There is an administrative charge for lost keys of any type. For access at off-campus sites, see their Administrative Office staff.

Email

Students must obtain a WSU network ID and WSU email address through [myNetwork Profile](#). Every WSU employee or student has an official WSU e-mail address ([firstname.lastname@wsu.edu](#)). All correspondence regarding academic and business-related activities will be sent to your WSU e-mail address. The Department maintains an electronic listserv of faculty, staff, and graduate students for circulating important notices. All graduate students will be placed on this distribution listserv.

Mail

Students in Pullman will be assigned a mailbox in Johnson Hall 152. Mail sent and received at the university should be official correspondence only. Personal mail should be sent to and from your private residence. Business correspondence can be left in the Main Department Office (Johnson Hall 149) for

mailing. Letters and packages should not be stamped, and must have the correct departmental return address; for Pullman, that is: Department of Horticulture, Washington State University, Pullman, WA 99164-6414. Shipping via UPS or FedEx also requires budget coding to cover shipping costs.

Telephones

WSU telephones are available for local calls. There is a phone in almost every graduate student office or nearby. An authorization code is required to make long distance calls. Students should consult their Major Advisor and the Administrative Assistant ([Ade Snider](#), 509-335-9502, Johnson Hall 149) regarding approval for this authorization code.

Photocopying

A black & white/color photocopy machine is located in the Main Department Office (Johnson Hall 149) for official copying. Each student will be assigned his/her own authorization code for the copy machine. Each student is allowed 100 copies per month, except Teaching Assistants, who will be given a separate authorization code for the classes they are assigned. Dissertations/theses should not be copied on the Department's photocopy machine. Photocopy machines are available at WSU libraries on campus. [Cougar Copies](#), a full service copy center, is located in the [Compton Union Building](#) (CUB).

Purchasing

All materials and supplies needed for a student's research project must be approved by the student's Major Advisor. [Central Stores](#) in Pullman has an inventory of office, laboratory, and chemical supplies. Other items may be ordered from outside vendors through the [Johnson Hall Business Center](#) (Johnson Hall 201-207) in Pullman or from the administrative offices at off-campus sites. Requisition forms are available from the [Johnson Hall Business Center](#). The form should be completed, including budget coding, approved by the student's Major Advisor, and submitted to [Johnson Hall Business Center](#) for processing. At off-campus sites, refer to the purchasing procedures at your location. Special procedures must be used for acquiring radioactive materials. **All requisitions for and receipt of radioactive materials must be made by the [Radiation Safety Office](#), and not by personnel in individual labs.**

Typing

Except for official business (purchasing, travel, personnel), which is handled by the Johnson Hall Business Center at administrative support at your location, graduate students are expected to type all materials related to their graduate studies.

Travel

Students must file Travel Authority forms before making any official trip away from the local area. At Pullman, Travel Authority forms are available from the [Johnson Hall Business Center](#). They should be completed, along with budget coding, and submitted to the [Johnson Hall Business Center](#) at least 5-7 days ahead of the proposed travel. At off-campus locations, obtain forms and submit them to the administrative office at your site. When motels are authorized, the motel receipt must be submitted along with a Travel Expense Voucher to be reimbursed. For travel expenses that are to be paid by the university, a monetary advance may be arranged, as long as the Travel Authority is submitted well in advance of the travel.

A variety of vehicles is available from the university [Motor Pool](#) in Pullman or your location for use on official university business. Charges associated with using Motor Pool vehicles must be borne by the respective research project. Therefore, check with your Major Advisor before reserving or using any university vehicle. In Pullman, a Vehicle Release Form must be completed, along with budget coding, and submitted to the [Johnson Hall Business Center](#) in advance of the trip. The approved Vehicle Release Form must be taken to the Motor Pool when a car is picked up.

Check-out

When students have completed their graduate work at WSU, they must complete the [JHGC departure checklist](#) and also consult with the Horticulture main office in Pullman on all necessary checkout procedures. Off-campus students should consult with the administrative office at their location. An [exit survey](#) and optional interview with the Department Chair should be scheduled. Any research facility used by the student must be completely cleared of chemicals, solutions, plant materials or samples no longer needed by the research program. The following items must be returned or provided before departing WSU:

- keys
- desk assignment
- theses/dissertation
- forwarding address
- electronic copies of any manuscripts in preparation

IMPORTANT WEBSITES

Department of Horticulture

Home Page: <https://horticulture.wsu.edu/>

Horticulture Graduate Program handbook and assessment forms: <http://horticulture.wsu.edu/graduate-programs/current-students/>

Horticulture Seminar Series schedule <http://horticulture.wsu.edu/hort-509510-seminar-series/>

Graduate School

Forms:

Application for Degree

Committee Change form

Deadlines and Procedures for Graduation (M.S.) and (Ph.D.)

Dissertation Agreement form

Dissertation and Thesis Guidelines

Dissertation/Thesis Acceptance Final Examination Scheduling form

Hold Harmless Agreement/Copyright Acknowledgement form

Preliminary Examination Scheduling form

Program of Study (M.S.) form

Program of Study (Ph.D.) form

Survey of Earned Doctorates

<https://gradschool.wsu.edu/facultystaff-resources/18-2/>

Graduate Catalog <https://gradschool.wsu.edu/graduate-school-catalog-2/>

Graduate School Policies and Procedures Manual <https://gradschool.wsu.edu/policies-procedures/>

Graduate Student Code of Rights and Responsibilities (Chapter 12) <https://gradschool.wsu.edu/chapter-twelve/>

Safety

Accident/Illness Incident Report Form (EH&S)

<https://shibidp.wsu.edu/idp/profile/SAML2/Redirect/SSO?jsessionid=jx39g18jzrqms457cro95o0k?execution=e1s1>

Environmental Health and Safety <http://ehs.wsu.edu/>

Institutional Animal Care and Use Committee <http://www.iacuc.wsu.edu/>

Institutional Biosafety Committee <https://biosafety.wsu.edu/>

Institutional Review Board <http://www.irb.wsu.edu/>

Radiation Safety Office (Pullman) <http://www.rso.wsu.edu/>

Safety Policies and Procedures Manual (SPPM) <http://public.wsu.edu/~forms/manuals.html>

University Recreation (services, including First Aid Training) <https://urec.wsu.edu/>

U.S. Occupational Safety and Health Administration (OSHA) <http://www.osha.gov/>

Washington State Department of Labor and Industries <http://www.lni.wa.gov/>

Other

Academic Media Services (Pullman) <http://www.ams.wsu.edu/Index.aspx>

Central Stores (Pullman) http://facops.wsu.edu/CentralStores/cs_about.asp

Compton Union Building (Pullman) <http://cub.wsu.edu/default.aspx>

CougarCard Center (Pullman) <http://cougarcard.wsu.edu/>

Cougar Copies (Pullman) <https://cougprintsplus.wsu.edu/>

Cougar Health <https://cougarhealth.wsu.edu/>

Faculty Manual <https://provost.wsu.edu/manuals-and-forms/>

Horticulture Farm Use Request Form (Pullman)
<https://horticulture.wsu.edu/gardens-orchards/orchard/>

Graduate and Professional Student Association (GPSA) <http://www.gpsa.wsu.edu/>

Graduate Writing Center (Pullman) <https://writingprogram.wsu.edu/graduate-writing-center/>

International Programs <https://ip.wsu.edu/>

Irrigated Agriculture Research and Extension Center, Prosser <http://www.prosser.wsu.edu/>

CAHNS Business Office <https://business-center.cw.wsu.edu/>

Motor Pool (Pullman) <http://facops.wsu.edu/motorpool.asp>

Mount Vernon Research Center <http://mtvernon.wsu.edu/>

M.S. Agriculture degree <http://www.msag.wsu.edu>

myNetwork Profile <https://webutil.wsu.edu/apps/myNetworkProfileHelp/aboutUserIDs.aspx>

Office of Procedures, Records and Forms <http://www.wsu.edu/~forms/manuals.html>

Office of Research Assurances <http://www.ora.wsu.edu/>

Plant Growth Facility (Pullman) <https://pgf.wsu.edu/>

Puyallup Research and Extension Center <http://www.puyallup.wsu.edu/>

R.B. Tukey Horticulture Orchard (Pullman) <https://horticulture.wsu.edu/gardens-orchards/orchard/>

Residency Information <https://residency.wsu.edu/>

Standards of Conduct for Students <http://conduct.wsu.edu>

Student Computing Services/ITS (Pullman) <https://its.wsu.edu/student-audience/>

Tree Fruit Research and Extension Center, Wenatchee <http://www.tfrec.wsu.edu/>

WSU Organic Farm (Pullman) <http://css.wsu.edu/organicfarm/>

WSU Spokane <http://spokane.wsu.edu/>

WSU Tri-Cities <http://www.tricity.wsu.edu/>

WSU Vancouver <http://www.vancouver.wsu.edu/>

APPENDICES

APPENDIX A: Key Horticulture Department Graduate Program assessment documents:

Posted here: <https://horticulture.wsu.edu/graduate/current-students/>

- Department of Horticulture Graduate Program Learning Outcomes
- Horticulture Graduate Program Bylaws
- Ph.D. Preliminary Exam Assessment Rubric
- Thesis/Dissertation Defense Exam Assessment Rubric – M.S., Ph.D.
- Graduate Student Annual Review Form
- Department of Horticulture Graduation Exit Survey

APPENDIX B: Guidelines for Responsibilities of Graduate Students, Major Advisors, and Faculty Committee Members

Each graduate student's Major Advisor should be committed to their education and training of the graduate student as a future member of the research community. Each graduate student's Faculty Advisory Committee, once approved on the Program of Study, "has the responsibility of directing the student's progress, supervising the dissertation, and participating in the preliminary and final examinations." (Graduate School's Policies and Procedures Manual, 2017-2018, p. 79). For more information, see the Graduate School's *Guidelines for Good Practices in Graduate Education*, <https://s3.wp.wsu.edu/uploads/sites/170/2018/11/GuidelinesGoodPractices.pdf>.

The graduate student's Major Advisor and Faculty Advisory Committee are responsible for setting, assessing, and maintaining standards for the graduate student. Requirements set by the Major Advisor and Faculty Advisory Committee may be in whatever form they feel is most appropriate for the student's progress toward degree, including courses and independent research, if necessary. Thus, each graduate student's program is individualized for that student's particular needs and interests, as well as compatible with the Major Advisor's research priorities.

Faculty Advisory Committee membership is regulated by the Horticulture Graduate Program Bylaws and Graduate School policy. Committee members should serve on a graduate student's Advisory Committee because of their abilities and qualifications to assist the student in completing their specific graduate program.

The graduate student is ultimately responsible for successful completion of their degree and is expected to maintain a high level of professionalism, motivation, engagement, excellence, scholarly curiosity, and ethical standards.

Responsibilities of the Graduate Student:

- Be knowledgeable of the policies, deadlines, and requirements of the Graduate School and Horticulture Graduate Program.
- Participate in the Graduate School's Responsible Conduct of Research Training Program and practice those guidelines.
- Contribute to maintaining an academic environment that is intellectually stimulating, emotionally supportive, safe, and free of harassment.
- Lead and conduct their research in an ethical and honest manner.
- Work with their Major Advisor to develop a thesis/dissertation project.
- Meet frequently (minimum of once every week recommended) with their Major Advisor.
- Select a Faculty Advisory Committee and complete a Program of Study, in consultation with their Major Advisor, early in their tenure (by second or third semester) in the Graduate Program.
- Meet with their Faculty Advisory Committee, individually or collectively, at least once each semester, but no less than once each year, to apprise them of progress on coursework and research.
- Attend and participate in conferences, meetings, seminars, and other professional events.
- Provide a realistic timeframe for writing and revising their thesis/dissertation to the satisfaction of their Major Advisor.
- Provide a thoroughly reviewed and revised thesis/dissertation to each Faculty Advisory Committee member several weeks before the required Scheduling Form is due at the Graduate School.

Responsibilities of the Major Advisor:

- Provide an academic environment that is intellectually stimulating, emotionally supportive, safe, and free of harassment.
- Discuss with the graduate student the policies and expectations on work hours, sick leave, vacation time, and working relationships with staff and other students.
- Be knowledgeable of the requirements and deadlines of the Graduate School and Horticulture Graduate Program.
- Ensure that a graduate student's assistantship contributes to their professional development and does not impede their progress toward degree.
- Provide leadership by example to facilitate the training of the graduate student in complementary skills needed to be a successful researcher.
- Guide the student in selecting a Faculty Advisory Committee.
- Help plan and direct the graduate student's research project.
- Provide guidance on appropriate coursework for their graduate degree.
- Meet frequently (minimum of once every week recommended) with the graduate student to provide advice and input on their research progress.
- Involve the student in professional activities, such as, conferences, peer review, extension events, field days, teaching, etc.
- Discuss authorship policies on research articles and conference presentations with the graduate student (see WSU Office of Research's *Guidelines for Authorship Determination for Manuscripts*, <https://research.wsu.edu/office-research/policies/authorship/>)
- Guide and advise a Ph.D. student on their preparedness for the preliminary examination.
- Solicit questions for the written preliminary examination from Faculty Advisory Committee members and organize them so as to avoid duplication.
- Thoroughly review and suggest revisions to the thesis/dissertation before it is sent to Faculty Advisory Committee members for review.
- Lead the oral preliminary and final defense examinations.
- Advise and prepare the student for their professional career after graduation, including assistance in finding an appropriate position.
- Avoid faculty rivalries from interfering with duties as Major Advisor.

Responsibilities of the Faculty Advisory Committee members:

- Provide advice to the student on their coursework and input on their research progress.
- Meet with the student individually or in committee at least once each year.
- Provide written or verbal comments and evaluations of the graduate student's questions and/or work in a timely manner.
- Provide written questions for a Ph.D. student's preliminary examination.
- Review the student's thesis/dissertation in timely manner after it has been thoroughly reviewed by the Major Advisor.
- Actively participate in the student's oral preliminary and final defense examinations.
- If appropriate, provide requested recommendations for the graduate student's applications for professional positions before or after graduation.
- Avoid faculty rivalries from interfering with duties as a member of a Faculty Advisory Committee.
- Excuse yourself from serving on graduate committees when there is a potential or appearance of conflict of interest.