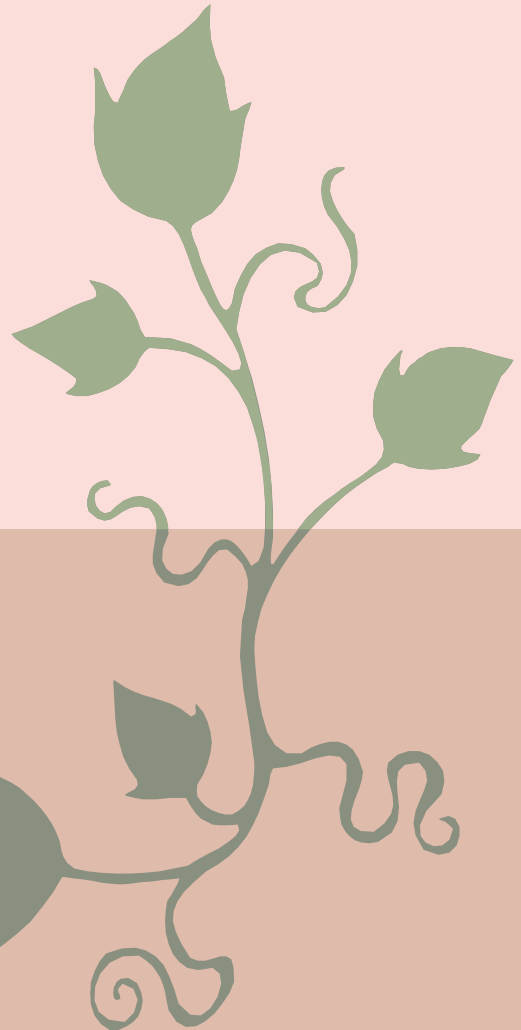


# Handbook for Horticulture Graduate Students



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## PREFACE

We welcome you to Washington State University and the Department of Horticulture and Landscape Architecture, a part 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. Outside of the required graduate student tour, 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. Please take advantage of the opportunity to accompany faculty members into the state for extension or research meetings; we assure you that 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 here, we welcome you as members of our teaching and research faculty. 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, while many will become field knowledgeable as well. We encourage each of you to attempt 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 some of the reasons we have developed this feeling.

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 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 and Landscape Architecture wholeheartedly supports this viewpoint. It is our aim 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 and programs; these are available from the Graduate School and the Academic Coordinator keeps current copies. 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 and Landscape Architecture 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 [Research Integrity](#)). 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.

## 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](#) 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 Program Director, who is also the Department Chair ([Dr. N. Richard Knowles](#), 509-335-9502), and the Executive Committee, which coordinates and advises the Program Director on the Horticulture Graduate Program. At the discretion of the Program Director, 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 (formerly Graduate Steering 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 Program Director appoints the Chair of the Executive Committee, and the Horticulture Graduate Faculty nominate and elect members to the Executive Committee. The current Executive Committee members are:

[Preston Andrews](#), Chair 509-335-3603  
[John Fellman](#) 509-335-3454  
[Kate Evans](#) 509-663-8181  
[Dorrie Main](#) 509-335-2774  
[Matthew Whiting](#) 509-786-9260  
[Eliane Bodah](#), Graduate Student Representative 509-335-5374

The Executive Committee recommends Horticulture graduate policies and curriculum to the Horticulture Graduate Faculty and Program Director, 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. 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 Program Director. 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 Program Director for the assignment of Graduate Research Assistants and Teaching Assistants; d) meeting at least twice each year to evaluate the progress of each graduate student and making recommendations to the Program Director 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 Program Director.

### **Horticulture Graduate Coordinator and Chair of the Executive Committee**

The Horticulture Graduate Coordinator ([Dr. Preston K. Andrews](#), 509-335-3603, Johnson Hall 155E) is also the 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.

### **Departmental Academic Coordinator**

The Academic Coordinator ([Karen Holden](#), 335-509-9503, Johnson Hall 149) is responsible for handling graduate student records and scheduling and administering certain aspects of the Horticulture Graduate Program, as detailed herein. The Academic Coordinator is available to answer many questions regarding the implementation of policies and procedures.

### **Student's Major Advisor(s)**

Each graduate student is assigned a Major Advisor before being accepted into the Horticulture Graduate Program. The Major Advisor is the student's main contact for information regarding graduate education. The Major Advisor, in consultation with the graduate student, will set the tone for the student's activities while enrolled at WSU. The Major Advisor will serve as the chair of the graduate student's Faculty Advisory Committee.

Some students may have an advisor who is located at a facility other than the WSU main campus in Pullman. It is departmental policy that students working with an off-campus advisor have an on-campus advisor located in Pullman to help with the student's program during the coursework phase of a student's

degree, or when the student is in Pullman. In most cases, the on-campus advisor will serve as a member of the 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. An on-campus advisor, for example, may also serve as a co-chair if the project and people involved feel that it is appropriate. When the student's Graduate Program of Study is turned into the Graduate School, a letter justifying the status of co-chairs and a statement clarifying whether either or both must sign appropriate paperwork must be included. Only tenured or tenure-track Horticulture Graduate Faculty may serve as sole Major Advisor, whereas non-tenure track WSU research, clinical, or affiliate faculty, or USDA-ARS researchers, that are appointed to the Horticulture Graduate Faculty, 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 Program Director. 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.

Members of the student's Faculty Advisory Committee are selected by the Major Advisor in consultation with the graduate student. Committee members must be approved by the Program Director, 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 faculty members, including the Major Advisor as Chair. The student's Major Advisor must be 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, may co-chair the committee. The Faculty Advisory Committee shall consist of at least two members who are tenure-track or research/clinical Horticulture Graduate Faculty. Other committee members may have adjunct or affiliate faculty status, be Graduate Faculty in other WSU graduate programs, or be nominated if non-WSU professionals. At least one member of the committee shall be from outside of the Horticulture Graduate Faculty.

**Ph.D. Student's Faculty Advisory Committee** shall consist of a minimum of four faculty members including the Major Advisor as Chair. The student's Major Advisor must be 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, may co-chair the committee. The Faculty Advisory Committee shall consist of at least two members who are tenure-track or research/clinical Horticulture Graduate Faculty. Other members may have adjunct faculty status, be Graduate Faculty in other WSU graduate programs, or be nominated if non-WSU professionals. At least one member of the committee shall be from outside of the Horticulture Graduate Faculty.

The graduate student should meet each semester, but not less than each year, with all Faculty Advisory Committee members, either individually or in a committee meeting (as appropriate), to appraise them of

progress on degree-related activities and to receive advice regarding graduate work and input on student progress.

## DEPARTMENTAL 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, either as an on-campus program or as an [online](#) degree.

**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.

**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](#) plan will be followed.

### Departmental and Professional Stewardship

All graduate students are considered to be 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,
- 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 Advisory Committee and Safety Committee, and a representative to departmental Faculty meetings and the WSU [Graduate and Professional Student Association](#) (GPSA). Other opportunities are also available for interested students.



## Statewide Research and Extension Center 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 Research and Extension Center Tour at their earliest opportunity. The tour occurs sometime during the summer break, between the Spring and Fall semesters. Students should enroll for one 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 master's degree in our department and enroll in our doctoral program, will be invited (but not required) to attend the tour twice.

## Review of Graduate Student Progress

To assist the student in the timely completion of all major degree requirements, the Graduate Executive Committee and the Program Director will review the progress of all enrolled M.S. graduate students twice each year and Ph.D. students once a year. 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.

Twice each year (usually in January and May for M.S. students) and once each year (usually in May for Ph.D. students), a Progress Review form (see Appendix 4) will be sent to each graduate student to complete 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. The Executive Committee reviews each progress report and makes its recommendations to the Program Director regarding each student's progress. The Program Director notifies each 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. 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 Experience

All students for advanced degrees in horticulture are expected to participate in teaching activities, as well as research activities, while at WSU. M.S. and Ph.D. students are required to satisfy departmental teaching requirements for each degree separately, regardless of previous teaching experience. The teaching experience requirement can be met by completing **one or an equivalent combination** of the following teaching duties at some time during the student's graduate program:

1. Prepare and present at least **three 50-minute lectures in person** at the undergraduate or graduate level in courses offered at any WSU campus.
2. Conduct at least **eight tutorial sessions** involving at least three students at each meeting.
3. Assist with the preparation and conduct of at least **six two-hour or three-hour laboratory periods**.
4. Prepare and present **three asynchronous presentations**, each equivalent to one 50-minute lecture, 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 for one semester**.
6. Prepare and present at least **three extension presentations** to stakeholder groups.

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.

### **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 graduate 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 an additional fee.

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

### **Exit Interview**

Each graduate student should meet with the Program Director for an exit interview at the completion of their graduate program at WSU. This meeting should be scheduled by the student prior to leaving WSU. It may be most convenient to schedule this appointment for the week following the final exam, although it may be easier for the student or the Program Director if the meeting is scheduled earlier or later than that time. This meeting 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. Students are also asked to complete a written evaluation, provided to them by the Academic Coordinator, at the same time.

## **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 degree requirements are meant to reflect a balance between these two goals –

assuring a knowledge of horticulture while preserving the Faculty Advisory Committee's freedom to design a program suited to each graduate student's area of specialization. Appropriate academic standards must be achieved in both areas, and will be administered as stated below. Regulations as to time limits, residency, etc. are found in the [Graduate School Policies and Procedures Manual](#).

### Minimum Course Requirements

To assure a broad understanding of what constitutes the field of horticulture, all students will be required to complete courses from each of the groups listed below. These requirements are set as the minimum that will be acceptable for a graduate degree in Horticulture. These requirements are set in addition to all other requirements set by the Graduate School and the Department.

**GROUP 1: Applied Plant Sciences:** Courses fulfilling this group must be junior undergraduate level or above. Examples of courses in the applied plant sciences include, but are not limited to, Pomology (Hort 310), Viticulture and Small Fruits (Hort 313), Olericulture (Hort 320), Greenhouse Management and Crop Production (Hort 357), Advanced Viticulture (Hort 513), Fruit Crops Management (Hort 521), Potato Science (Hort 590), or Advanced Topics in Horticulture (Hort 503).

**GROUP 2: Basic Plant Sciences:** Courses fulfilling this group must be junior undergraduate level or above. Examples of courses in the basic plant sciences include, but are not limited to, Systematic Botany (Biol 332), Plant Physiology (Biol 420), Crop Biotechnology (CropS 425), Horticultural Genomics (Hort 480), Anatomy and Physiology of Grapevines and Berries (Hort 488), 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), Advanced Horticultural Crop Physiology (Hort 516), Post-Harvest Biology and Technology (Hort 518), Chemistry and Biochemistry of Fruit and Wine (Hort 535), Plant Cell Biology (Biol 537), Insect-Plant Interactions (Entom 545), Plant Ecophysiology (Biol 560), Diversity of Plants (Biol 570), or Advanced Topics in Horticulture (Hort 503).

**GROUP 3: Research Foundation:** Courses fulfilling this group must be junior undergraduate level or above. Examples of courses that contribute to an understanding of the research foundation (foundational, analytical, methodological, or techniques) for graduate study include, but are not limited to, General Genetics (MBioS 301), Statistical Methods in Research I (Stat 412), Environmental Biophysics (Soils 514-515), Soil Microbiology and Biochemistry (Soils 431), 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 (Soils 541), Field Analysis of Sustainable Food Systems (AFS 545), Special Projects in Electron Microscopy (EMic 586), General Biochemistry I & II (MBioS 513 & 514), Introduction to Population Genetics (Biol 519), Plant Molecular Genetics (MPS 525), Plant Tissue Culture Techniques (Hort 533), Analyzing Microarray and Other Genomic Data (Stat 565), Biochemical Signaling (MPS 571), or Advanced Topics in Horticulture (Hort 503).

**GROUP 4: Supporting Areas:** Courses fulfilling this group can be introductory level or above. Examples of courses that contribute to an understanding of the agricultural disciplines that directly support undergraduate horticulture degrees include, but are not limited to, Introductory Soil: A Living System (Soils 201), Introduction to Agroecology (Soils 302), Diseases of Fruit Crops (PIP 300), Ecology and Management of Weeds (CropS 305), Agricultural Entomology (Ent 340), General Plant Pathology (PIP 429), Soil Fertility (Soils 441), Pesticides and the Environment (IPM 452), Systems of Integrated Pest Management (IPM 462), Current Research in Organic and Sustainable Agriculture (AFS 501), Advanced Cropping Systems (CropS 503), Soil Fertility Management (Soils 547), Fundamentals of Biological Control (Entom 547).

### Table of Minimum Departmental Course Requirements:

<u>Group</u>	<u>Masters</u>	<u>Doctoral</u>
1 – Applied	3-6 hours	3-6 hours

2 – Basic	3-6 hours	3-6 hours
3 – Foundation	3 hours	6 hours
4 – Supporting	3 hours	3 hours
TOTAL	15 hours	18 hours

Fulfillment of these requirements may occur before admission into our graduate program, such as, in an undergraduate program or previous M.S. program, or while enrolled in the Horticulture Graduate Program at WSU. The Executive Committee will determine which of these minimum group requirements have been met prior to enrollment and will inform the graduate student and the student's major advisor of any remaining deficiencies. The graduate student's Faculty Advisory Committee will advise the student regarding possible ways to fulfill the remaining minimum requirements. The Advisory Committee will also determine which of the courses taken to fulfill these minimum degree requirements may also be included on the student's Program of Study. In other words, the Graduate Program of Study may include all, some, or none of these minimum course requirements.

### Graduate Program of Study

The Graduate Program of Study is the official document that lists all of the classes that a student will apply towards a graduate degree, the members of the Faculty Advisory Committee who will oversee the degree, and a research topic. 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](#) should be strictly followed. The completed form, with signatures from the entire Advisory Committee and Horticulture Program Director, 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 by the end of the first 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 Hort 510, and 4 hours of 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 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 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 second 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 including 2 hours of Hort 510, and 20 hours of 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 5xx, in addition to one credit 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 Program Director. (Note: Since the Graduate Minor in Horticulture is new for the 2010-11 academic year, current doctoral students may amend their Program of Study to add a Graduate Minor in Horticulture.) 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 Program Director 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 Program Director. 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, courses taken as a graduate student 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. 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 Program Director. No graded graduate-level course work taken toward a completed master's degree at an accredited institution may be used toward another master's degree at WSU. Students intending to request 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. No more than half of the total graded course credits, excluding the required 2 credit hours of Hort 510 (Graduate Seminar), may be transfer credits and listed on the Program of Study (maximum transfer credits of 9 hours for the M.S. degree and 10 hours for the Ph.D. degree).

## Seminar

All graduate students are expected to **attend all Horticulture Seminars**, including those scheduled outside of the regular seminar series, whenever they have no class conflicts. 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, students are required to register for 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 P/F. During the semesters in which a graduate student will be presenting a seminar, they should register for Hort 510 (Graduate Seminar), which is graded, instead of Hort 509. The schedule of graduate seminars can be found at this [website](#).

Both M.S. and Ph.D. candidates are required to **present two seminars** in Hort 510 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**, which will be graded and presented as part of Hort 510, will provide an overview of the student's proposed research project. Normally, this first seminar includes a problem statement and research justification, a review of related scientific work, and a summary of proposed research or project methodology. If the student's research emphasis changes from the topic presented, the student will not be required to present a new seminar.

**M.S. Students:** must present their first seminar before the end of their second semester at WSU.

**Ph.D. Students:** must present their first seminar before the end of their third semester at WSU.

**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 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.

Students normally register for their second credit of 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 submit a written research proposal to their Faculty Advisory Committee and the Academic Coordinator, **prior to the end of their first year of study**. Generally, research proposals should be **five to ten pages in length** and contain a literature review, a clear statement of the objectives and hypothesis to be tested, and the materials and methods to be used. The latter should include a discussion of procedures to be followed, an estimate of facilities and equipment that will be needed, and an estimate of the time and costs necessary to conduct the research. 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" in Hort



510 (Graduate 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. 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 rewrite the proposal, but the Department does not require that a new proposal be written.

### **Journal Articles in Lieu of Thesis**

It is increasingly common that students publish articles in refereed journals prior to finishing their thesis. Reprints of publications cannot be compiled and submitted to the Graduate School in lieu of a thesis, but depending on a student's Faculty Advisory Committee, typed manuscripts, in the style of the journal to which the paper was submitted for publication, can be compiled and submitted as a part of the thesis. 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 \(format\)](#), title page, signature, etc. Final decisions on the format and content of a student's thesis must be approved by his/her Faculty Advisory Committee. Students are urged to consult their Faculty Advisory Committee members early on in their program to discuss thesis options.

### **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 may pay for certain costs incurred during the course of the research with prior arrangements, submitted in writing and approved by the Department Chair.

All drawings, graphs, lettering, and other artwork in the thesis or dissertation are the responsibility of the student. Students are also responsible for costs involved in typing all thesis materials and other graphic help needed in the development of their thesis, 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, of 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 horticulture 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 written and oral portions and follows guidelines established by the Graduate School in the [Graduate School Policies and Procedures Manual](#). The written examination is administered by the Academic Coordinator for students taking the exam on the Pullman campus or by a designated staff member for students taking the exam at branch campuses or Research and Extension Centers. The written exam consists of questions submitted by **all members of the student's Faculty Advisory Committee**. The examining committee for the oral portion of the preliminary exam is made up of the student's Faculty Advisory Committee and any other Graduate Faculty in Horticulture.

The student is responsible for scheduling the preliminary examination. It may be scheduled using the [Preliminary Examination Scheduling Form](#), but only after program requirements have been satisfied, after the Program of Study has been approved, after a substantial portion of the required course work has been completed, and when the student and Major Advisor believe 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 start of the first written exam questions until the completion of the oral exam. Students should work with the Academic Coordinator in Pullman to determine the complete schedule for all written and oral portions of the exam before commencing on any one portion.

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 postpone taking 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.
2. **Student** obtains [Preliminary Examination Scheduling Form](#) from the Graduate School. Student completes the form, obtains signatures of their Faculty Advisory Committee members, informs the committee members of the schedule, and submits the completed form to the Academic Coordinator at WSU-Pullman. **(NB: The Program of Study must be on file prior to scheduling the preliminary exam.)**
3. **Academic Coordinator** (Johnson Hall 153) 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. **(NB: The Preliminary Examination Scheduling Form must be returned to the Graduate School at least 10 working days before the exam begins.)**
4. **Academic Coordinator** works with the Major Advisor to send out requests to the student's Faculty Advisory Committee members for written questions, indicating the date questions are due back to the Academic Coordinator. The Major Advisor will review and discuss the questions with each member of the Faculty Advisory Committee to assure their appropriateness and that there is no duplication. **(NB: 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 Academic Coordinator. If questions require re-typing, they must be submitted at least three working days prior to the date on which those questions will be administered.
6. **Academic Coordinator and designated off-campus staff** (if the exam is not taken on the Pullman campus) coordinates the scheduling of the written exam with the student. The Academic Coordinator posts one copy of the approved exam schedule from the Graduate School in the department, notifies all Horticulture Graduate Faculty, and posts the exam schedule electronically. **(NB: If the written portion of the exam is to be held at a location other than the Pullman campus, the Academic Coordinator will coordinate proctoring the exam with a designated staff member at the off-campus location.)**
7. **Academic Coordinator or designated off-campus staff** (if the exam is not taken on the Pullman campus) 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, either in the morning or afternoon on the day of the exam. The answers to the questions are due back to the Academic Coordinator or designated off-campus staff either by noon or at the end of the work day. **(NB: The designated off-campus staff member proctoring the exam should return the answers to the Academic Coordinator in Pullman.)**
8. **Academic Coordinator** provides a copy of the questions to the student and routes the answers to the appropriate Faculty Advisory Committee member, after that set of questions is completed. The Academic Coordinator will place a copy of the answers in the student's file.
9. **Faculty Advisory Committee** members, after grading the answers to their questions, returns a copy of their questions and answers to the Major Advisor.
10. **Major Advisor** discusses the results of the written exam with the student prior to the scheduled oral exam.

#### **Written Preliminary Exam 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 Academic Coordinator or designated off-campus staff representative as appropriate.

#### **1. Exam Length Options:**

- a. Up to 4 hours, 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, to begin at the beginning of the workday and end by the end of the work day.

#### **2. Exam Proctoring Options:**

- a. Exam proctored by the Academic Coordinator or designated off-campus staff representative, under the following conditions:
  - 1) The student may bring something to drink and eat to the exam.
  - 2) 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.
  - 3) The exam monitor will ask for the answers 15 minutes before the end of the exam period, and the student will have five additional minutes to finish the exam. If the student completes the exam before the exam period is over, the student should return the answers immediately to the exam monitor.

- b. Examiner-proctored exam by the Faculty Advisory Committee member, or
- c.. Student-proctored exam.

### 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 Exam

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. There is no time limit for the oral exam, but all aspects of both the written and oral prelim exam must be completed within 30 days from the beginning of the written portion of the exam.

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 and ballots cast on the basis of the entire exam, including both written and oral.

All members of the student's Faculty Advisory Committee must vote to pass or fail. Any other members of the Horticulture Graduate Faculty may be present, ask questions, but may not vote, except with prior permission of the Program Director of the Horticulture Graduate Program. The student shall pass if a minimum of three-fourths of those voting so indicate. 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 as a PDF file via email. 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 the event of a failed examination, the student can be re-examined only one more time. At least 3 months must elapse between a failed 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.

## Thesis Defense: Final Oral Exam

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](#) 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 [Final Exam Scheduling Form](#) (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 consists of a seminar and an oral thesis defense to be scheduled immediately following or soon after the seminar. 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. The thesis defense will be evaluated and discussed by the attending Graduate Faculty using the rubric in the [Thesis Defense 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.

Although the student's Major Advisor conducts the final examination, a member of the student's Faculty Advisory Committee, appointed as the Graduate School's liaison, returns all ballots and paperwork from the exam to the Graduate School. 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, Research and Extension Centers. If the exam is not held on the Pullman campus, then it must be transmitted by videoconference to Pullman, usually to Johnson Hall 151. 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 to at the Academic Media Services scheduling [website](#). If the exam is held by videoconference, at least two Faculty Advisory Committee members must be physically present with the student. In situations in which faculty participate over videoconference, **actual signed ballots** must be sent to the Graduate School liaison immediately following the exam via confidential fax or as a PDF file via email. No other format is acceptable to the Graduate School. The liaison should include these ballots in the packet sent to the Graduate School.

More than ten working days, minimum, 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 the 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 153) 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 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.

**NB: By signing the *Dissertation/Thesis Acceptance/Final Examination Scheduling Form* each Faculty Advisory Committee member agrees that a "dissertation/thesis, suitable in format for submission to the library, has been given preliminary approval." This means that each committee member has reviewed an essentially complete draft 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, and to the Academic Coordinator to serve as a public copy for review by the Horticulture Graduate Faculty and other department students and staff. The "public" copy should be provided in digital format to the Academic Coordinator, who will distribute it to others 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 Academic Coordinator.)

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

A signed dissertation/thesis must be submitted in digital format within five working days of the final oral examination to the Graduate School. The title page, signature page signed in black ink, and the abstract page must be submitted to the Graduate School on 100% cotton paper. One signed, unbound paper copy (100% cotton paper not necessary) must be submitted to the Academic Coordinator for the Department archives.

All students must submit a completed [Hold Harmless Agreement/Copyright Acknowledgement](#) form with the dissertation/thesis. In addition, all doctoral candidates must submit a completed and signed

[Dissertation Agreement](#) form and should submit a completed and signed [Survey of Earned Doctorates](#).

## GRADUATE ASSISTANTSHIPS

### Assignment of Graduate Assistantship Appointments

All state-funded, departmental Graduate Research Assistant and Teaching Assistant appointments shall be made by the Program Director 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 Program Director 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.

### Graduate Assistantship Duties

Assignment of **assistantship duties** will be made by the Program Director 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 determined after course enrollments are available, and 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.

### 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.

## Payroll Deduction of Tuition

For details on how to arrange for automatic deduction of tuition and fees from your paychecks, see the Academic Coordinator (Johnson Hall 153) for current information.

## 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 [Occupational 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](#).

The Department Safety Committee is chaired by [Scott Mattinson](#) (509-335-7108) and is a resource for all Pullman departmental safety-related issues, except for 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). Students located at branch campuses or Research and Extension Centers should consult the safety committee and specific safety requirements at those locations. 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 (Johnson Hall 149 in Pullman) and complete an electronic accident/illness [Incident Report Form](#).

## 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 with the Administrative Manager ([Betty Musick](#), 509-335-9505, Johnson Hall 143) regarding any questions about desk or office assignments. Any changes in desk or office assignments must have prior approval of the Administrative Manager.

### **Computing Services**

PCs and printers 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**

The Department maintains modern media presentation equipment, including laptop computers and projectors, slide duplicator, cameras, and DVD and VCR players for student use. The student must pay for all consumable materials, e.g. film, disks, etc., 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](#) in Holland 150.

### **Writing Services**

The [Graduate and Professional Writing Center](#), located in Smith CUE 414 on the Pullman campus, assists graduate and professional students with all types of written communication. They do not offer proofreading and editing services. The Writing Center has limited hours, so check their website before going.

### **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. This farm is also used for teaching purposes and by the [WSU Organic Farm](#). 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 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 MVRC-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. See the Main Department Office (Johnson Hall 149) to check out keys and have your Cougar Card programmed for building access. Keys to farm gates, cold rooms, etc. must be obtained separately. Farm gate keys require the Farm Manager's approval. Charges for lost keys of any type are \$10 per key.

### **Email**

Students must obtain a WSU network ID and email address through [myNetwork Profile](#). Inform the Academic Coordinator of any change to your WSU email address, so that you can be notified. 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 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: Department of Horticulture and Landscape Architecture, Washington State University, Pullman, WA 99164-6414.

## 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 Manager ([Betty Musick](#), 509-335-9505, Johnson Hall 143) 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 in the Fischer Agricultural Sciences Library (Johnson Hall Annex C-2) and in other 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](#) has an inventory of office, laboratory, and chemical supplies. Other items may be ordered from outside vendors through the Main Department Office (Johnson Hall 149). Requisition forms are located in the mailroom (Johnson 152). The form should be completed, including budget coding, approved by the student's Major Advisor, and submitted to the Main Department Office for processing. 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), graduate students are expected to type all materials related to their graduate studies. Check with your supervisor or Major Advisor for appropriateness of submitting work to staff in the Main Department Office.

## Travel

Students must file Travel Authority forms before making any official trip away from the local area. Travel Authority forms are available in Johnson Hall 152 and should be completed, along with budget coding, and submitted to the Main Department Office at least 5-7 days ahead of the proposed travel. When motels are authorized, the motel receipt must be submitted along with an 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 far in advance.

A variety of vehicles is available from the university [Motor Pool](#) 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. A Vehicle Release Form must be completed, along with budget coding, and submitted to the Main Department

Office 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 consult with the Main Department Office on all necessary checkout procedures. An exit interview with the Program Director must 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 and Landscape Architecture:**

Horticulture Graduate Program Bylaws

<[http://www.hortla.wsu.edu/hortgrad/Hort Grad Program Bylaws 8-10.pdf](http://www.hortla.wsu.edu/hortgrad/Hort_Grad_Program_Bylaws_8-10.pdf)>

Horticulture Graduate Seminar schedule <<http://www.hortla.wsu.edu/hortgrad/seminar.html>>

Horticulture Learning Outcomes Assessment Plan

<[http://www.hortla.wsu.edu/hortgrad/Hort MS PhD Learning Assessment.pdf](http://www.hortla.wsu.edu/hortgrad/Hort_MS_PhD_Learning_Assessment.pdf)>

Horticulture Thesis Defense Assessment form

<[http://www.hortla.wsu.edu/hortgrad/Hort MS PhD Thesis Defense Assessment.pdf](http://www.hortla.wsu.edu/hortgrad/Hort_MS_PhD_Thesis_Defense_Assessment.pdf)>

### **Graduate School:**

Application for Degree

<<https://secure.wsu.edu/login/login.asp?dest=http://secure.wsu.edu/gradschool/AppForDegree/Application/FillForm.castle>>

Committee Change form <<http://gradschool.wsu.edu/Documents/PDF/ChangeCommittee.pdf>>

Deadlines and Procedures for Graduation

<[http://gradschool.wsu.edu/Documents/PDF/Deadlines Procedures.pdf](http://gradschool.wsu.edu/Documents/PDF/Deadlines_Procedures.pdf)>

Dissertation Agreement <<http://gradschool.wsu.edu/Documents/PDF/DissertationAgreeForm.pdf>>

Dissertation and Thesis Guidelines

<<http://gradschool.wsu.edu/Documents/PDF/DissertationAndThesisGuidelines.pdf>>

Dissertation/Thesis Acceptance Final Examination Scheduling Form <<http://gradschool.wsu.edu/Forms/>>

Graduate Catalog <<http://gradschool.wsu.edu/FutureStudents/Academics/GraduateCatalog/>>

Graduate School forms <<http://gradschool.wsu.edu/Forms/>>

Graduate School Policies and Procedures Manual

<<http://gradschool.wsu.edu/CurrentStudents/PoliciesAndProcedures/>>

Graduate Student Code of Right and Responsibilities

<<http://gradschool.wsu.edu/Documents/PDF/GraduateStudentCodeofRightsandResponsibilities.pdf>>

Hold Harmless Agreement/Copyright Acknowledgement form

<<http://gradschool.wsu.edu/Documents/PDF/Copyright.pdf>>

Preliminary Examination Scheduling Form <<http://gradschool.wsu.edu/Documents/PDF/PrelimSched.pdf>>

Program of Study, M.S. <<http://gradschool.wsu.edu/Documents/PDF/ProgMast.pdf>>

Program of Study, Ph.D. <<http://gradschool.wsu.edu/Documents/PDF/ProgPhd.pdf>>

Research Integrity <<http://gradschool.wsu.edu/CurrentStudents/ResearchIntegrity/>>

Survey of Earned Doctorates <<https://sed.norc.org/doctorate/showRegister.do>>

### **Safety:**

Accident/Illness Incident Report Form (EH&S) <<http://www.ehs.wsu.edu/AccIllrptfrm.html>>

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

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

Institutional Biosafety Committee <<http://www.bio-safety.wsu.edu/default.asp>>

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

Materials Safety Data Sheets (MSDS) <<http://www.ehs.wsu.edu/ohs/ohs-MSDS.html>>

Occupational Health and Safety <<http://www.ehs.wsu.edu/OHS.html>>

Radiation Safety Committee

<<http://president.wsu.edu/office/presidential-committees/radiation-safety.html>>

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

Radiation Safety Training <<http://www.rso.wsu.edu/training/training.html>>

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

University Recreation First Aid Training <[http://urec.wsu.edu/training\\_cpr.aspx](http://urec.wsu.edu/training_cpr.aspx)>

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](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) <[http://cub.wsu.edu/shop\\_dine\\_cougarcopies.aspx](http://cub.wsu.edu/shop_dine_cougarcopies.aspx)>

Faculty Manual <[http://facsen.wsu.edu/faculty\\_manual/](http://facsen.wsu.edu/faculty_manual/)>

Farm Use Request Form (Pullman)

<[http://www.hortla.wsu.edu/orchard/Farm Use Request Form 2009.pdf](http://www.hortla.wsu.edu/orchard/Farm%20Use%20Request%20Form%202009.pdf)>

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

Graduate and Professional Writing Center (Pullman)

<<http://universitycollege.wsu.edu/units/writingprogram/units/writingcenter/grad&prof/>>

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

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

Office of International Students and Scholars <<http://www.ip.wsu.edu/oiss/>>  
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) <<http://pgf.arc.wsu.edu/index.html>>  
Puyallup Research and Extension Center <<http://www.puyallup.wsu.edu/>>  
R.B. Tukey Horticulture Orchard (Pullman) <<http://www.hortla.wsu.edu/orchard/index.html>>  
Residency Information <<http://www.registrar.wsu.edu/Registrar/Apps/Residency.ASPX>>  
Space Request Form, Plant Growth Facility <<http://pgf.arc.wsu.edu/services/images/SpaceRequest.pdf>>  
Standards of Conduct for Students <<http://conduct.wsu.edu/default.asp?PageID=338>>  
Student Computing Services Help Desk (Pullman) <<http://www.scs.wsu.edu/index.aspx>>  
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/>>