

**GRADUATE STUDENT HANDBOOK
for CROP SCIENCE and SOIL SCIENCE
PROGRAMS**

**DEPARTMENT OF CROP & SOIL SCIENCE
OREGON STATE UNIVERSITY**

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1. WELCOME



Jay Noller
Professor and Department Head
Crop and Soil Science

Welcome to the Department of Crop and Soil Science (CSS). Your graduate experience is a unique opportunity to learn scientific principles, techniques, make a contribution to the scientific literature, and develop professionally. In addition, it will provide exposure to peer-review experiences and reflection about ethical scientific behavior. The more time and energy you invest, the greater the educational rewards and the preparation for your science career.

This handbook is designed as a guide toward your degree success. It supplements information found on the Graduate School website and Oregon State University policy statements. It does not include all details of the requirements of the University Graduate School, provides information on departmental-specific graduate student policies and procedures.

University-level Graduate Learning Outcomes

University-wide Graduate Learning Outcomes for doctoral and master's programs were proposed by the Graduate Council and approved by the Faculty Senate in 2011 (<http://gradschool.oregonstate.edu/faculty/program-assessment>).

Learning outcomes for PhD Degree programs state that the student shall:

- a. produce and defend an original significant contribution to knowledge,
- b. demonstrate mastery of subject material, and
- c. be able to conduct scholarly activities in an ethical manner.

Learning outcomes for Master's Degree programs state that the student shall:

- d. conduct research or produce some other form of creative work, and
- e. demonstrate mastery of subject material, and
- f. be able to conduct scholarly or professional activities in an ethical manner.

Additional outcomes, the assessment of all outcomes, and the specification of learning objectives related to these outcomes will be developed and reviewed periodically at the program level.

Crop & Soil Science Department Graduate Programs

The Department of Crop and Soil Science offers two graduate programs: Crop Science and Soil Science. The Crop Science degree includes three options: 1) Agronomy, 2) Plant Breeding and Genetics (PBG), and 3) Entomology (ENT). Successful candidates may earn the MS or the PhD in any of these options. Much of this handbook is similar for students in any of the options. Where differences exist, they are detailed.

Crop Science Learning Outcomes

In addition to university-level GLOs, five program level (PL) outcomes have been developed for Crop Science degree candidates. Four of the five are identical for PhD and MS candidates—PL3 distinguishes the level of independence of project development and execution.

PL1: Evaluate the design and quality of relevant Crop Science research in journals.

PL2: Apply current research tools to field-based and laboratory-based research.

PL3 (PhD): Apply scientific method to independently developed and directed collaborative research;

PL3 (MS): Apply scientific method to independent research under major advisor's direction.

PL4: Write and publish a peer-reviewed journal manuscript in the discipline and commodity specialty area. (does not apply to non-thesis students)

PL5: Synthesize, organize, and communicate crop science concepts to appropriate audiences and demonstrate skill in the use of social media.

Academic Disciplines

Crop Science Study Options

Areas of study leading to MS and PhD degrees in Crop Science include: crop breeding, genetics and cytogenetics; crop physiology and biochemistry; forage and pasture management; crop production; post-harvest seed technology; seed biology; seed crop physiology; seed production; weed biology; weed management; and entomology.

Original research is an essential part of MS and PhD thesis programs. Each program is individually designed by the student and the graduate committee. Graduate students are expected to participate in the on-going research program with which their thesis is associated regardless of the funding source. This research is considered an essential part of the training program and an excellent opportunity for the student to apply knowledge gained in the classroom to field or laboratory situations.

See the specific course requirements for all Crop Science degree options in Section 9.6.1 of this document.

Soil Science Study Options

Graduate programs in Soil Science lead to MS and PhD degrees with specialization in various fields of soil science – environmental soil science; forest soils; nutrient cycling; soil geochemistry; soil conservation and land use; soil fertility and plant nutrition; soil genesis and classification; soil microbiology; soil physics; and water resources.

Original research is an essential part of MS and PhD thesis programs. Each program is individually designed by the student and his or her graduate committee. Graduate students are expected to participate in the on-going research program with which their thesis is associated regardless of their funding source. This research is considered an essential part of the training program and an excellent opportunity for the student to apply knowledge gained in the classroom to field or laboratory situations.

See the specific course requirements for all Crop Science degree options in Section 9.6.1 of this document.

2. IMPORTANT PEOPLE AND INFORMATION SOURCES

2.1 Your Major Advisor

Your major advisor is your partner in successfully navigating graduate school requirements. See Section in this document for a list of your responsibilities in your success and those of your major advisor. See Section 7 for some guidelines to optimize this relationship.

2.2 Graduate Program Coordinators



Crop Science – Sabry Elias (sabry.elias@oregonstate.edu)



Agronomy Option— Tom Chastain
(Thomas.Chastain@oregonstate.edu)



Plant Breeding and Genetics Option – Shaun Townsend
(townsenm@oregonstate.edu)



and John Henning (john.henning@oregonstate.edu)



Entomology Option – Silvia Rondon (silvia.rondon@oregonstate.edu)



Soil Science – markus.kleber@oregonstate.edu)

These faculty members manage and coordinate CSS graduate programs. Individuals filling these roles will change over time, but they are available to address your questions about graduate school, CSS policies, or issues that cannot be addressed through interaction with your major advisor. They are also available to receive comments or suggestions about ways that the Department can improve the graduate program. Speak with them about things you don't feel comfortable talking about with your major advisor or to receive a different perspective.

The Graduate School is the official administrative unit of your graduate enrollment and tracks progress towards your degree. While your major advisor can help you negotiate the Graduate School system, it often is best to obtain guidance directly from the Graduate School.

2.3 Administrative Manager/Assistant to Department Head

Kristin Rifai

541-737-5854

Kristin.Rifai@oregonstate.edu

Kristin will assist with Department Head signature requests, scheduling meetings with the Department Head as well as signature for motor pool authorization forms.



2.4 Graduate Program Assistant/Office Specialists

In addition to the Administrative Manager, there are two office specialists housed in the main office.

Emmalie Goodwin

541-737-2821

Emmalie.Goodwin@oregonstate.edu

Emmalie is responsible for office, building and lab keys, AV equipment, purchase and travel requests, office assignments, expense reimbursements, meeting space reservations, announcing your defense date and day-to-day logistics.



Shauna Gutierrez

541-737-1286

Shauna.Gutierrez@oregonstate.edu

Shauna is the coordinator for graduate admissions, students paid as hourly workers, graduate assistantships, publication reviews, departmental newsletter and publication editing and creation.



2.5 Information Technology (IT) and Computer Support Group

Roots IT Support Group

541-737-2470

<http://support.roots.oregonstate.edu/>

The ROOTS IT staff provides computer support ranging from advice on computer purchases to setting up a remote connection for your thesis defense. The IT group is located on the first floor of the Crops Building. Go there for assistance or send an email to roots.support@oregonstate.edu.

2.6 Graduate School

Main website: http://oregonstate.edu/dept/grad_school/

Guide to success: http://oregonstate.edu/dept/grad_school/success.php

The Graduate School officiates your study program. It is the source and destination of all the documents and forms that you must file as you progress toward completion of your degree program. They also set the scheduled mileposts for your degree.

2.7 CSS Department Website

General website: <http://cropandsoil.oregonstate.edu>

Graduate student pages: <http://cropandsoil.oregonstate.edu/content/graduate-students-0>

Refer to the Departmental website for policies and procedures for CSS graduate programs.

2.8 CSS Graduate Faculty

Crop Science Graduate Faculty: <http://cropandsoil.oregonstate.edu/content/graduate-faculty-crop-and-soil-science-department>

Soil Science Graduate Faculty: <http://cropandsoil.oregonstate.edu/content/graduate-faculty-crop-and-soil-science-department>

The above links provide a list of graduate faculty for each degree program. Only faculty who are designated *graduate faculty* can serve as major or co-major advisors for CSS degrees or serve on student committees. Faculty members may request the graduate faculty designation.

When considering selection of your graduate committee, see section 15.2 for information on the branch experiment stations; many of their faculty can serve as your major advisor or other committee members.

2.9 International Programs Office

General website: <http://oregonstate.edu/international/atosu/students>

Information for new international students and visiting scholars:

<http://oregonstate.edu/international/atosu/students/new>

The International Programs Office provides a wide variety of services and assistance for international students, including information about immigration regulations and support services. If you are an international student, this should be your first stop upon arrival on campus.

3. ORIENTATION EVENTS

3.1 Required Orientation for All New Graduate Students

This orientation session is sponsored by the Graduate School during the fall term. Check the [Graduate School Calendar](#) for scheduling and registration information.

3.2 Orientation and Training for New Graduate Teaching Assistants (GTAs)

This is sponsored by the Graduate School each fall term. If you will be a GTA during the coming academic year, or if you have a special interest in teaching, you should attend this training.

Check the [Graduate School Calendar](#) for scheduling and registration information.

3.3 CSS Orientation Session

CSS new graduate student orientation session is held each fall during the first week prior to classes. All students are expected to participate. Continuing students are encouraged to attend to learn about new policies and procedures. Check the [CSS website](#) for details.

3.4 International Student Orientation and Document Check

<http://oregonstate.edu/international/atosu/students/new/orientation>

All newly admitted international students are required to attend an international student orientation and the immigration document check-in session. You cannot register for classes if you do not attend both. If you are unable to attend one or both of these sessions, contact International Student Advising and Services by phone at 541-737-6310 or email them at isas.advisor@oregonstate.edu. To cover the cost of orientation, all students will be charged an orientation fee of \$35 to \$50 (depending on the term). This one-time fee will be charged automatically to your OSU student account. If you are on a state-funded teaching or research assistantship that pays for your tuition, this fee will be automatically paid for you.

This session will provide information about:

- immigration rules and regulations that affect your visa status
- OSU student health services and health insurance requirements
- academic life at OSU and how to register for classes
- campus and community resources
- opportunities to meet other new international and domestic students at OSU

3.5 University Day

<http://oregonstate.edu/events/universityday/>

This event initiates the new academic year; it is a celebration of OSU. Visit the expo to learn about other departments and service units across campus, as well as community and resources. Usually there is a free lunch!

4. FIRST THINGS TO DO WHEN YOU ARRIVE ON CAMPUS

4.1 Check your admission status and degree.

Graduate students may be admitted as regular, conditional, provisional, or special (non-degree). You may be admitted to the Master of Science (MS) or Doctor of Philosophy (PhD) program. Check your admission status and degree program; be certain that you understand what it means relative to your educational goals, and confirm that it is correctly recorded. Refer to the [OSU Graduate Catalog](#) for definitions of student status and reclassification requirements.

4.2 Obtain your student identification (ID) card.

<http://fa.oregonstate.edu/business-affairs/idcenter>

To obtain a student ID card, you must show evidence of official admission to OSU at the Identification Center in the Memorial Union (MU) room 103.

4.3 Obtain your keys, a mailbox, and desk space.

As a graduate student at Oregon State University, you are eligible for departmental mail delivery and office space. You may require access to buildings and research areas during times when the University is closed.

Keys: Check with your major advisor regarding keys needed, then obtain the appropriate key request cards from Emmalie Goodwin. Greenhouse key requests are handled by Greenhouse Operations (located in the East Greenhouse). Take the signed key request cards to the Key Shop (on the corner of SW Washington Way and SW 15th Street) to obtain your keys. Key shop hours are 11:00am - 3:00pm.

Mailboxes: All graduate students who are in residence are assigned a mailbox. The mailboxes are located in the Soils office (ALS 3017) or Crops Building office (CrpS 107). United States and campus mail is delivered and picked up twice daily.

Office and desk space: As space permits, the department provides a desk for each graduate student in an office shared with other students.

4.4 Get an After-Hours Pass

Obtain an After-Hours Pass from the administrative manager Kristin Rifai, so that you can be authorized to be in the buildings after working hours or on weekends.

4.5 Get connected.

Computing and Information Technology (IT) support for the Department is coordinated through the Roots IT Support Group. Their website provides information and the contact information of people who can provide assistance in a wide range of IT needs:

<http://support.roots.oregonstate.edu/>

General IT support across campus is coordinated through OSU online services:

<http://oregonstate.edu/main/online-services>

When you were accepted to graduate school at OSU you were given an OSU Network ID (ONID) account. ONID login credentials are your portal to OSU online services, including registration, viewing and obtaining transcripts, and checking your employment status. An email address is associated with your ONID account. You may request a CSS specific

address to link with your ONID account. Ask for help in having all your ONID email delivered to your other email account. See the Roots IT Support Group to get started.

As a CSS computer user, you have access to the following network sharepoints:

- **U Drive:** A personal directory that only you can access; it has a limit of 14 GB and is archived nightly.
- **R Drive:** This is the department-wide research directory. It provides file sharing for labs and other work groups.
- **S Drive:** This is the department-wide shared directory and houses other files commonly used by department members.

4.6 Set up your payroll.

If you are appointed to a graduate assistantship, see department office specialist, Shauna Gutierrez, to complete the necessary paperwork. Doing this **as soon as possible** will avoid a delay in receiving your first paycheck. International students must bring the original work authorization documents to this meeting; they are listed on page 4 of the I-9 form.

Students on fellowships will also complete paperwork. Shauna Gutierrez handles these appointments as well.

At the time you establish your payroll, you will complete federal tax withholding forms. The Valley Library provides tax booklets, or visit the Internal Revenue Service website <http://www.irs.gov/>.

4.7 Register for classes.

Catalog and Schedule of Classes: <http://catalog.oregonstate.edu/>

With your major advisor, and your graduate committee, you will develop a comprehensive program of study, detailed in Section 9.4 of this document. Confer with your major advisor to design an initial study plan for the first term. The current Schedule of Classes will provide information and detailed instructions on registration. <http://oregonstate.edu/current>.

When considering registration, review the content in Section 10 of this document for degree credit requirements, Section 6 for policies about summer enrollment and employment, and Section 5 if you have a graduate assistantship of any type.

Be sure to register for the correct classes and to note the various registration deadlines listed on the OSU [Academic Calendar](#). There are fees associated with late registration.

5. GRADUATE ASSISTANTSHIPS

Graduate student assistantships awarded by the department are of two types: Graduate Research Assistantship (GRA) and Graduate Teaching Assistantships (GTA). A graduate student may be offered either or both types for their Graduate Assistantship (GA). In CSS, the minimum appointment is 0.30 full-time equivalent (FTE) and may be split as GRA and GTA depending on the student. The maximum FTE is 0.49.

Graduate School Description:

http://oregonstate.edu/dept/grad_school/current/assistantships.html

5.1 Graduate Research Assistantships (GRA)

GRAs are part-time [up to 0.49 (FTE) appointments. Students who are awarded a GRA assist faculty in conducting research projects. **There are no automatically recurring GRA positions in the department.** Research project leaders or the department head may create ad hoc GRA positions; such appointments are for terms of one year or less. They may be subject to annual renewal based on program need, academic performance, and

availability of funds. GRA renewals are considered each spring and are normally made effective September 16. Major advisors evaluate students based on coursework, progress on thesis research, and other contributions to the major advisor's research program.

When adequate budgetary support is available, the department will renew appointments of GRAs, but only for students with satisfactory performance in the position and who have not completed their graduate study.

Major advisors will provide students with notification of termination at least one quarter in advance whenever possible. Prior to the beginning of the appointment, advisors will inform students about financial support for the position for the upcoming fiscal year.

GRAs on 0.49 FTE appointments will provide an average of 20 hours of non-thesis service per week for the assistantship. Since GRAs ordinarily are doing research under their appointment as part of their thesis, separating work for which they are paid and work for their thesis may not always be easy. This is an important subject to discuss with your major advisor (see section 7). GRAs at other FTE levels are expected to provide proportional levels of service.

5.2 Graduate Teaching Assistantships (GTA)

GTAs are part-time up to 0.49 (FTE) appointments. Students who are awarded a GTA assist faculty in designing and delivering undergraduate courses.

Many of the GTA appointments in our department assist in teaching SOIL 205 – an undergraduate class with ten labs each term; other GTA appointments exist. As a GTA, you must master the course content and gain the ability to communicate ideas clearly. This is a skill that is central to success in your graduate studies and professional life. As with GRAs, ***there are no automatically recurring GTA positions in the department.*** GTA appointments are typically for a term, although you may be offered multiple GTA appointments within a year or over the course of your graduate tenure.

GTAs on 0.49 FTE appointments are expected to provide an average of 20 hours of service per week for the assistantship. GTAs at other FTE levels are expected to provide proportional levels of service.

5.3 Stipends and Remissions

Assistantships provide a monthly stipend. The amount of these stipends depends upon the fractional appointment. Stipends are tied to a base rate established by the University. However, the specific stipend amount is determined by the major advisor. The decision is based on the experience and qualifications of the student and availability of funds. At the start of each academic year, the department administrative manager will present you with an offer letter that outlines your appointment terms, including the stipend amount.

Assistantships at appointments of 0.30 FTE or greater receive tuition remission during the academic year as well as remission of a portion of student fees. If an assistantship is awarded during the graduate student's first term, OSU will also remit the matriculation fee as well as the International Orientation Fee for international students.

There is no tuition remission for summer assistantships. Many students working during the summer may be placed on an hourly wage appointment. Please discuss this with your major advisor. If you defend your thesis and graduate in a summer term, it is Graduate School policy that you register for 3 credits that term. All graduate degree candidates who use university resources during summer term must register for a minimum of 3 credits, as discussed in Section 6 of this document.

Ecampus tuition is covered under remission policies. See section 4.7 for additional details. Cost of graduate tuition and fees can be found here:
<http://gradschool.oregonstate.edu/admissions/cost>

5.4 Health Insurance

All students receiving graduate assistantships of 0.30 to 0.49 FTE are automatically enrolled in PacificSource insurance coverage unless they file a waiver indicating comparable insurance coverage with Student Health Services Insurance. **OSU pays 87% of the premium for employee-only coverage during the term(s) of your appointment. You must pay the remaining 13%. Dependents can be added for an additional cost.** See

<http://studenthealth.oregonstate.edu/graduate-assistant> and

http://studenthealth.oregonstate.edu/sites/studenthealth.oregonstate.edu/files/main/docs/grad_waiver_201516.pdf for more information.

Article 28, Section 4, of the Coalition of Graduate Employees bargaining agreement indicates that graduate assistants' health insurance coverage for summer session will match the coverage level during their last prior appointment period. One-ninth of the total summer session health insurance for the appropriate level of coverage will be deducted from each of the monthly paychecks during the academic year, beginning in October and ending in June. Graduate Assistants wishing to opt-out of the summer coverage must submit an opt-out form to Student Health Services by **May 01, during the spring term preceding the "opt-out" summer**. The employee contribution for any summer coverage premium that was deducted will be refunded no later than June pay cycle.

Students employed on a summer term, students on an hourly wage appointment, and students who will not return in the fall may enroll in the COBRA extension policy of the OSU student health insurance. Additional information about COBRA coverage can be obtained by calling PacificSource Administrators: 877-355-2760.

5.5 Coalition of Graduate Employees

The Coalition of Graduate Employees (CGE) is the collective voice of the graduate student employees of Oregon State University. CGE is a labor union with the exclusive right to negotiate with OSU on behalf of graduate research and teaching assistants. The contracts CGE earns through collective bargaining determine the salary, working conditions, health coverage, and other rights and benefits of employment for the individuals they represent. Membership in CGE is voluntary, although, you may be required to contribute "fair-share" fees whether you are a member or not. For more information: <http://cge6069.org/>

Given the recent Supreme Court decision regarding unions and "fair share", students are advised to look into the consequences of that decision and union dues.

6. SUMMER ENROLLMENT AND EMPLOYMENT

University policy states that any graduate student working toward a degree during the summer and using University resources (office, library, lab, and/or access to faculty) must be enrolled in a minimum of three credits. The department expected minimum enrollment is five credits for students supported during the summer by their major advisor. Students enrolled in fewer than three credits are **ineligible** to use university resources. Please note that the department minimum enrollment of credits is greater than the university minimum number of three. Due to Internal Revenue Service and Social Security Administration rules students enrolled in three credits are technically under enrolled and are therefore subject to Social Security and Medicare taxes which total 7.65%. The department seeks to minimize tax consequences (i.e. higher tax due from student). Therefore, we expect enrollment of five credits preferably all with CSS, CROP or SOIL course designator. Please note these summer credit opportunities:

- Two 1-week, intensive soils courses have been developed; one focused on field methods (1-credit) and one focused on lab methods (2-credits).
- Planning is underway for a similar intensive course in seed science & technology.
- See the catalog of courses for other opportunities.

Students are responsible for summer tuition and fees. There are no tuition or fee remissions available during the summer. Graduate students are not required to enroll in classes during the summer to work on grant-funded research. However, there is no mechanism to pay your summer tuition or fees directly from grant or project funds held by your major advisor. Discuss strategies to cover the cost of summer term tuition or fees and summer employment opportunities with your major advisor.

The summer salary rates paid to graduate students are equal to the rates paid during the academic year. Typically the Department does not offer research or teaching assistantships in the summer. However, many students continue assisting in the research projects with which they are connected during the summer. In these cases, students are employed on an hourly basis at rates comparable to their school year assistantship during the summer.

During any term, students holding graduate assistantships may work as student employees in addition to their assistantships. If a graduate assistant on less than 0.49 FTE takes on extra duties, the sum of wages from the assistantship plus wages from the extra duties may not exceed the equivalent of 0.49 FTE for any term. This is true for extra duties at any location within the Oregon State University system. Exceeding the 0.49 FTE limit jeopardizes the student's assistantship eligibility.

7. CULTIVATING THE RELATIONSHIP WITH YOUR MAJOR ADVISOR

The quality of the interaction with your major advisor significantly influences your graduate school experience. Ideally, it should be a mutually enriching relationship that not only results in successful degree conferral, but also maximizes the rewards and benefits from your time at OSU. Your major advisor can become a highly significant person in your professional career. Cultivating the relationship with your major advisor should be one of your top priorities in graduate school.

That does not mean that you must be close friends or socially compatible. What it does mean is that both of you must develop mutually open, honest, and frequent lines of communication about the progress on your degree. The sections that follow are meant to provide topics you can use to open a dialog with your major advisor. If not addressed, these topics can become sources of conflict if there are misunderstandings or differing expectations.

The answers to these topics listed here form a discussion between you and your major advisor. Many students and advisors find it valuable to write down specific expectations, responsibilities, and timelines. These documents serve as a reference document to guide your progress and a reference when questions arise. Alternately, you and your advisor may prefer to cover this information verbally. If this is the case, it is still useful to make written notes during your conversations, and to note questions or topics that to cover during your next conversation.

You and your advisor are required to complete a formal annual review of your progress, as detailed in Section 12.1 of this document.

7.1 Research Expectations

One of the main things you, your major advisor, and your committee must discuss is research expectations. Much of this conversation will involve the best approach to the science. Other important details to discuss Include:

- How much freedom will you have in designing your research plan?
- How does the research you do for your thesis relate to the research you do as part of any broader research assistantship responsibilities? Specifically, what are the major advisor's expectations for contributing to research activities outside of your thesis project?

Be sure to discuss these topics with your major advisor early in your graduate program.

7.2 Authorship, Intellectual Property, and Data Management

Authorship is an important aspect of research expectations. Research is increasingly collaborative, even when done as part of an MS or PhD thesis. While there are broad guidelines for determining authorship (e.g. <https://www.hsph.harvard.edu/faculty-affairs/authorship-guidelines/>), specifics vary from field to field and even within sub-disciplines of crop and soil science. Discuss assignment of authorship with your major advisor.

- Does your major advisor expect to be a co-author on the papers related to your thesis or dissertation?
- Will you be a co-author on work you do that is not part of your thesis/dissertation research project?
- The data you produce as part of your graduate work is valuable in its own right, even independent of its inclusion in a scientific article. What is your right to this data now and into the future, and how will these data be archived and shared?

Many funding agencies require that data produced under grants be made publicly available. There is a growing trend to make nearly all scientific data "open source." For instance, see: <http://www.nceas.ucsb.edu/datapolicy>. In contrast, there may be restrictions on the communication of research results from work funded in part or wholly by private companies. For instance, a funding source may place an embargo on publishing work so that they have first access to the information. Also, your work may involve intellectual property that has commercialization potential. There are complex legal issues related to patentable results. These complicate how and when you communicate results. Discuss all these issues your advisor. See also *being part of a team* section below (7.4).

Storing and archiving data is another important issue. Granting agencies may require detailed data management plans as part of proposals. Data management plans include the physical aspects of storing data in ways that minimize the chance for loss of data. Solid data management plans also help prevent the more subtle and pernicious ways of losing data such not including units, not providing good descriptions of what the data are or how they were collected, or even forgetting where you put the data. Detailed metadata that describe the *what*, *where*, *how*, and *when* of data is important. A complete data management plan outlines the specific manner in which data will be shared and archived. Discuss the general data management strategy with your advisor, and learn whether any specific data management plans apply your project.

7.3 Assistantship Expectations

Discuss the major advisor's expectations for participation in lab activities and with other students in your group. Those with 0.49 FTE appointments will devote essentially half of their time to the assistantship.

- What does this mean?
- What does it mean if your assistantship has a lower FTE?
- What are your specific position and job description expectations?
- Does your advisor expect you to keep regular hours in the lab? If so what are they?
- Are there periods of time (such as harvest season) when you may have to work more hours?

Being in agreement with your major advisor about participation in lab activities will do much to

reduce unmet expectations for both parties. Also, see the research expectations in Section 7.1 of this document.

7.4 Being Part of a Team

As a graduate student at Oregon State University, you represent the State of Oregon, OSU, CSS, your lab group, and your advisor. While you should be ethical and professional at all times, your actions and activities will now reflect on a larger group. Therefore, your major advisor may require review of any work (e.g. talks, publications) before it is shown to peers or the public. In addition, being part of a team involves obligations and responsibilities that are not specifically tied to your assistantship or research. For example, it is a common expectation that all lab members take part in mentoring and training undergraduate and new graduate students in research techniques and protocols. Other examples may include attending regular lab meetings, occasionally assisting other students, and contributing to clean, organized and safe lab spaces. Discuss these broader expectations with your major advisor early in your graduate program.

7.5 A Schedule of Communication

Your major advisor is your direct and most frequent contact during your graduate program. This individual is your supervisor and mentor in your professional development. Contact your advisor for assistance with any aspect of your graduate education. However, recognize that individuals differ in their work styles and communication expectations. Early in your degree program, discuss such expectations with your major advisor.

- Do they expect to receive weekly updates on your progress?
- Do they only want to hear from you if you have a specific question or problem?
- What are your own expectations and desires for communication?

Incompatible non-expressed expectations are a common source of tension between students and advisors. Avoid this by having a conversation with your major advisor about when and how you both prefer to communicate. You may never be completely aligned, but talking about this issue will assist you in reaching an accommodation that satisfies both parties.

7.6 Completing Your Degree Program

Communication becomes particularly important as you begin data analysis and the writing process. Develop a realistic schedule for writing, revising, and defending your thesis or dissertation. You must allow time for meaningful feedback from your major advisor and other committee members, and to edit and revise your initial drafts. You must also coordinate your writing schedule with the scheduling requirements set by the Graduate School for your defense. Your schedule may be influenced by availability of funding or expiration date of your visa. Early and frequent communication with your major advisor and the rest of your committee about this schedule is essential. During your first committee meeting, develop a timeline for your program and revise it as needed as you progress toward your degree.

The majority of your interactions with your major advisor during your degree program will involve discussions on how best to analyze your results and to communicate those results to your peers through your thesis or dissertation and associated publications.

- Does your advisor expect to be consulted about each analysis or figure you produce?
- Would they prefer a more polished selection of analyses?
- Would they like to see a more fully formed product such as a results section before providing feedback?
- What are your expectations and preferences for input on the analysis and writing steps?

Maintain a regular flow of information, feedback, and interaction. Limited communication about data analysis, results, or review will limit your progress.

8. RESPONSIBILITIES

Several broad expectations govern students, advisors, and supporting administration of the CSS Graduate Programs.

8.1 Student Responsibilities

Students are expected to:

- Assume the major responsibility for their graduate program and initiate each step involved in obtaining the degree.
- Ensure that the members of their graduate committees are designated graduate faculty. If such is not the case, see Kristin Rifai.
- Demonstrate honesty and ethics in all aspects of their academic work.
- File a Graduate Program Checklist (Appendix 1) with their major advisor and update this for each term as required.
- Meet regularly with the major advisor to discuss progress or difficulties in research and coursework.
- Contact graduate committee members to schedule committee meetings.
- Submit required Graduate School forms. (See Appendix 1).
- Discuss serious difficulties with the department head or graduate program coordinator.
- Engage willingly in their advisor's research, teaching, and extension programs.
- Maintain a GPA of at least 3.0. Strive for excellence in all coursework and research.
- Maintain a clean and organized office and lab space during the program and prior to departure.
- Be familiar with and comply with Graduate School and departmental requirements and regulations.
- Attend and participate in weekly department seminars and thesis defense presentations.
- Write the thesis/dissertation in journal article format, and submit manuscripts for publication **before** leaving OSU.
- Return departmental keys upon completion of the degree program.
- Ensure that all research data has been archived according to the expectations of the major advisor.

8.2 Major Advisor Responsibilities

Major advisors are expected to:

- Responsibly advise and guide students in their graduate program development, coursework, and research.
- Instruct new students on departmental regulations and research facilities; introduce them to other graduate students, staff, and faculty members; and assist them in completing the Graduate Program Checklist.
- Be particularly alert to the guidance of beginning students and specifically encourage short-term research challenges to promote student interest, involvement, and development of research expertise and philosophy.
- Provide budgetary support for supplies, services, and equipment needed for thesis research.
- Guide advisees to develop programs of study consistent with the student's career goals and departmental and Graduate School requirements.
- Remain informed of advisee's progress and difficulties in research and coursework.
- Inform students if their performance is not satisfactory, and discuss solutions and consequences in such cases as poor performance persists.
- Assist advisees in seminar preparation and practice.
- Assist in thesis organization and editing so that it is in good form before distribution to other committee members.

- Encourage students to participate in CSS and other departmental seminars and in regional, national, and international scientific meetings. Assist students in preparing their oral presentations and posters.
- Carefully edit manuscripts co-authored with students prior to submission for departmental review.
- Ensure that advisees function as an integral part of the research, teaching, and/or extension programs.
- Conduct an annual review of all GRAs and GTAs and submit a copy to the department's administrative manager.

8.3 Department Responsibilities

Departmental administrative personnel are expected to:

- Provide office and thesis research space, facilities, and educational resources to graduate students insofar as resources and opportunities permit.
- Encourage students to attend and present research at professional meetings by providing transportation funding and/or in deferring costs of such participation as resources and university policies permit.
- Ensure that the graduate policy and departmental standards are maintained.
- Assist in the solution of major problems that arise during the student's graduate program.
- Seek graduate student and major advisor input on issues of concern.
- Ensure that annual reviews are conducted for all graduate students.

9. MAJOR COMPONENTS OF YOUR ACADEMIC PROGRAM

9.1 Learning Outcomes

Overarching (University) Graduate Learning Outcomes for doctoral and masters programs were proposed by the Graduate Council and approved by the Faculty Senate on Jan 13, 2011 (doctoral) and April 14, 2011 (masters). The graduate outcomes, as approved by Faculty Senate, are:

Learning outcomes for PhD Degree programs state that the student shall:

- (a) Produce and defend an original significant contribution to knowledge;
- (b) Demonstrate mastery of subject material; and
- (c) Be able to conduct scholarly activities in an ethical manner.
- (d) Effectively communicate in field of study

Learning outcomes for Master's Degree programs state that the student shall:

- (a) Conduct research or produce some other form of creative work, and
- (b) Demonstrate mastery of subject material, and
- (c) Be able to conduct scholarly or professional activities in an ethical manner.

The assessment of program-level learning outcomes is to be formative, providing guidance for students as they work toward achieving required outcomes, and summative, determining satisfactory progress toward degree completion. **Students are to be informed of learning outcomes and the strategies used to assess progress toward achieving the outcomes.**

Program Level Student Learning Outcomes were drafted and submitted in spring 2018:

Soils graduate program level Learning outcomes for both PhD Degree and MS are identified as:

- (a) **Knowledge:** demonstrate the breadth and depth of knowledge associated with their discipline
- (b) **Evaluation:** design, conduct, analyze, and interpret research effectively on important problems in their discipline
- (c) **Application:** communicate effectively to a diverse group of people using appropriate traditional and emerging technological media
- (d) **Synthesis:** make an original contribution to their discipline

Strategies used to assess progress toward achieving graduate learning outcomes

PhD

a) Knowledge

- 1.) Performance in Coursework - GPA in Coursework
- 2.) Oral prelims – Graduate committee assesses quality of performance in closed session
Minimum Requirement: Must have GPA of 3.0 or greater (minimum grade: B-)

b) Evaluation

- 1.) **Two** research seminars – Faculty and staff present at seminar will assess performance using rubric (Appendix 2)
Minimum requirement: Combined Rubric Score > 3 (range 1-6)

c) Application

- 1.) **Two** terms of teaching practicum – teaching evaluations using form (Appendix 3)
- 2.) Oral defense of the dissertation – Faculty and staff present at seminar will assess performance using rubric (Appendix 2)
Minimum requirement: 1.) Teaching evaluations score > 3 (range 1-6); 2.) Total Rubric Score > 4 (range 1-6)

d) Synthesis

- 1.) Completion and submission of scientific manuscript –present manuscript for inspection
Minimum requirement: 2 manuscripts submitted to peer reviewed outlet – confirmation email showing completion of submission process

MS

a) Knowledge

- 1.) Performance in Coursework - GPA in Coursework
Minimum Requirement: Must have GPA of 3.0 or greater (minimum grade: B-)

b) Evaluation

- 1.) **One** public technical seminar – Faculty and staff present at seminar will assess performance using rubric (Appendix 2)
Minimum requirement: Combined Rubric Score > 3 (range 1-6)

c) Application

- 1.) **One** term of teaching practicum – teaching evaluations using form (Appendix 3)
- 2.) Oral defense of the dissertation – Faculty and staff present at seminar will assess performance using rubric (Appendix 2)
Minimum requirement: 1.) Teaching evaluations score > 3 (range 1-6); 2.) Total Rubric Score > 4 (range 1-6)

d) Synthesis

- 1.) Completion and submission of scientific manuscript –present manuscript for inspection

Minimum requirement: 1 manuscripts submitted to peer reviewed outlet – confirmation email showing completion of submission process

9.2 Preliminary Committee Meetings

During your first term, you will likely have a number of informal meetings with your major advisor for development of your academic program and to identify potential graduate committee members. It is not required that these early meetings include your official committee members, although it can be beneficial to include some of them in these meetings. Once your committee membership is confirmed, schedule a formal preliminary committee meeting. Ideally, this would occur before the end of your first term.

- This meeting must be held no later than the completion of 18 credits for MS students.
- PhD students with a master's degree should hold this meeting before completing two terms.
- PhD students without a master's degree must convene their committee before completing five terms.

Graduate School regulations do not require that MS students have a preliminary committee meeting before filing their program of study, but the department strongly encourages all graduate students to do so. MS students are not required to include the graduate representative in this meeting. They may identify a graduate representative later in the program of study. However, PhD students must have a formal preliminary committee meeting that includes the graduate representative before submitting their programs of study.

The preliminary committee meeting provides the graduate committee members with an opportunity for early input into the student's coursework and research. These can enhance the graduate student productivity, and preempt problems that may otherwise arise. During the meeting, committee members will point out course, research, and career options. They will assist you and your major advisor in developing a plan for your graduate career. The following is an outline for an effective committee meeting:

- Introduction: The student should present a brief verbal autobiography, including general background and educational experience, and short- and long-range professional goals. Present a projected timetable of graduate study and a tentative list of courses to be taken in the proposed program. If you have created a tentative thesis plan, it should be presented.
- Discussion of Program: The committee and the student will plan a tentative course program. This plan will take into account the candidate's previous education, research area, goals, and interests. It is helpful if the following written information is provided to members of the graduate committee before the meeting:
 - A brief statement of student's professional goals and objectives.
 - A listing of undergraduate and graduate courses taken including course names, numbers, credits, grades, and institutions.
 - A proposed list of courses to be taken at OSU.
 - A tentative timetable for the graduate study plan. Base this timetable on the Checklist found in Appendix 2.

9.3 Thesis Research Outline

Active engagement in research is central to your graduate education. Work with your major advisor and committee to develop a written outline and plan for your proposed research. The exact form and extent of this plan can vary. For instance, your major advisor might require that you write your plan in the form of a detailed research proposal, similar to something you would submit to a granting agency. They might simply request that you write a 3-4 page outline. In

either case, be as specific and detailed as possible in your plan. The plan will help you and your major advisor think explicitly about how your research fits into the rest of your graduate program. For instance, it would be difficult to carry a heavy course load while establishing research plots. The plan will also facilitate meaningful discussion and provide the graduate committee a basis for feedback. Part of research involves active planning and plan revision as necessary.

9.4 Graduate Committee, Graduate Major and Minor

The graduate committee is the formal body that guides, mentors, and evaluates your graduate experience. You and your major advisor should carefully consider the members of this committee. Include members who can provide you experience and expertise in areas related to your research and other career goals, including teaching and Extension.

You are not required to declare a minor for the PhD or MS degree. The distinction between a “major” and “minor” can be difficult to distinguish. However, you may declare a minor. Determine the program of study for a minor with your committee. The minor need not be restricted to one department. It may be an integration of supporting courses from two or more departments. However, note that some programs have specific requirements for a minor.

Even if you do not officially declare a minor field, you may wish to include the equivalent of a “minor field” faculty member from outside of the Department on your graduate committee. Also, your program of study will likely include a significant number of classes outside of those offered by the department.

Note that Crop Science and Soil Science graduate degrees are separate programs. Thus, a soil science faculty member on a crop science graduate committee, or vice versa, can be considered the faculty from another degree program. The Graduate School has a number of regulations on the structure of graduate committee. Please read more on their website: http://oregonstate.edu/dept/grad_school/degreecommittee.php.

Table 1. Minimum Composition of Graduate Committee¹.

Degree	Major	Minor	Graduate Faculty at Large	Graduate Council Representative
MS (thesis with minor)	2	1	0	1
MS (thesis without minor)	2	0	1	1
MS (non-thesis with minor)	2	1	0	0
MS (non-thesis without minor)	2	0	1	0
PhD (with minor)	2	1	1	1
PhD (without minor)	2	0	2	1

¹http://oregonstate.edu/dept/grad_school/degreecommittee.php

You may have someone in mind to serve on your graduate committee, but they may not be appointed to the graduate faculty. Be sure to check the potential committee member's graduate faculty status with the graduate school by sending an email to graduate.school@oregonstate.edu

For PhD students, the committee must be formed before the program of study is submitted. See below for more information on program of study. The Graduate School does not require MS students to select major and minor professors before submitting the program of study. However, CSS MS students are encouraged to form their graduate committee and schedule a

preliminary meeting before completing two quarters of study.

All thesis MS and PhD students are required to have a Graduate Council Representative (GCR) on their committees. It is the GCR's responsibility to represent the Graduate School, monitor the oral and thesis defenses to ensure rigor in these examinations, and to ensure that the student is treated fairly during the examination.

Ask the Graduate School to provide a list of potential graduate representatives. Consult with your major advisor before choosing a GCR. Individuals on the list are not obliged to be on your committee and may decline your invitation. You are not obligated to accept any graduate representative on the list. You may request that the Graduate School provide another list. The GCR is not required to read your thesis or participate in questioning the candidate. However, many GCRs do read the thesis and participate in the defense examination.

9.5 Program of Study

The program of study is a list of courses you intend to study to fulfill the requirements of your degree. You will develop it in collaboration with your major advisor and graduate committee.

Note these important program of study filing deadlines:

- MS students must file a program of study before the completion of 18 credit hours. At the very latest, you must submit an approved program of study at least 15 weeks before your final oral examination.
- PhD students who already hold a master's degree must file a program of study before completing two terms. At the very latest, you must submit an approved program of study at least six weeks before your preliminary oral exam.
- PhD students who do not hold a master's degree must file a program of study before completing five terms. At the very latest, you must submit an approved program of study at least six weeks before your preliminary oral exam.

The Graduate School will review your program of study to ensure that it conforms to the general rules and regulations for your degree. You must file a revised program of study each time your program changes. Construct a program of study that meets the minimum requirements for graduation and take as much additional coursework (including thesis and blanket courses) as you and your graduate committee see fit. Additional courses need not be listed on your program of study.

The program of study for PhD students must be approved by the full graduate committee in a formal meeting. See section 9.1. The program of study for MS students only requires approval by the major advisor. However, MS students should engage the full committees in the development of the program. All study programs are approved and signed by the department head.

The composition of your program of study is governed by a number of rules and regulations. Program of study forms that include a summary of these rules are available from the Graduate School: http://oregonstate.edu/dept/grad_school/forms.php#program

The university requires that your program of study include training on the responsible conduct of research. See information provided on the Research Office website: <http://research.oregonstate.edu/osp/responsible-conduct-research> and section 9.9 below for information on how to meet this requirement.

9.6 Seminars

Graduate students and faculty in Crop and Soil Science are expected to attend the weekly departmental seminars unless there are travel or course schedule conflicts. Students are expected to contribute to discussions and to make presentations as determined by the

Seminar Committee and in consultation with the major advisor. Student seminar presentations will undergo written evaluation by the faculty and students present. The major advisor will discuss strengths and weaknesses of each seminar presentation with the student and develop a plan for improvements as needed.

Student seminar requirements:

- Each MS student is required to present at least one seminar in addition to the thesis defense seminar. They must register for CROP/SOIL/ENT 507 during the term in which they present unless other arrangements are made.
- Each MS student is expected to present a research plan seminar during the spring term of the first year of study. This seminar will include a comprehensive literature review and research plan. If the spring term is not feasible, other academic term may be permitted. Alternately, MS students may give an oral research presentation at a professional meeting provided the major advisor gives advance approval. A poster presentation does not meet this requirement. If the MS student's only professional meeting presentation is a poster presentation, the MS degree defense must be an publicized seminar.
- Each PhD student must present at least two seminars. PhD students must be enrolled in CROP/SOIL/ENT 607 during the terms in which these seminars are presented.
 - The first seminar is a "research plan" seminar presented in a spring seminar session. It may be offered during another term if the spring term is not feasible.
 - The second seminar must be presented at least six months before thesis defense. This requirement may be fulfilled by a departmental seminar presentation. This seminar
 - topic shall not be related to the dissertation topic;
 - it may be on some phase of the dissertation work which can be seen as separate from the dissertation topic; or
 - it may be an oral presentation of their research at a professional meeting with advanced permission of the major advisor.
- Each PhD dissertation defense will be an publicized seminar, and open to the public.
- MS or PhD students enrolled in the PBG option must give an additional seminar under the PBG 507/607 class designation. These seminars are organized by the PBG faculty.

Guidelines for Seminar Development and Presentation

- Students are expected to deliver a well-prepared presentation, deliver it in a professional manner, and be knowledgeable about the subject and able to discuss and respond to questions. Students may involve members of the audience during the discussion period.
- Students should work closely with the major advisor to develop the seminar.
- Prepare and revise visual aids to ensure that they are effective, and that charts are legible, etc.
- Provide the seminar committee chair with a brief written biographical sketch 72 hours

before the seminar. The chair will use it to introduce you.

- All non-thesis seminars should be approximately 20 minutes in length with 10 minutes allotted for questions.
- Thesis defense seminars should be about 40 minutes, with 10 minutes for questions.

9.7 Required Courses

9.7.1 Crop Science Degree

The Crop Science graduate program requires the following courses in addition to the general requirements for the program of study established by the Graduate School:

1. CROP 507/607 Graduate Seminar (variable credits). See section 9.5 for details.
2. At least one term of a teaching activity. Register for CROP/PBG/ENT 509 during the same term. Teaching activity is optional for non-thesis MS students.
3. While you may elect to sign up for the E-campus version of classes, your advisor and sponsor may not have funds to cover the extra cost of E-campus courses. Please discuss with your advisor and your sponsor prior to registration.
4. All students who entered the program after January 1, 2014 must train in responsible conduct of research:
 - a. Complete the OSU Research Office Collaborative Institutional Training Initiative (CITI) on-line physical science training module and obtain a certificate of completion. See: <https://www.citiprogram.org/> for details, **or**
 - b. Take a formal class offered by the Graduate School or other campus unit that specifically addresses responsible conduct of research/research ethics.
 - c. Further, individual research projects and research groups are expected to have internal discussions about responsible conduct of research.
5. All students who entered the program after January 1, 2015 must complete training modules and obtain completion certificates on:
 - a. AlcoholEdu – High-Risk Alcohol Prevention
 - b. HAVEN – Sexual Violence Prevention

See <http://studenthealth.oregonstate.edu/welcome> for details on these trainings.

9.7.1.1 Crop Science Degree with PBG Option

The Crop Science Graduate Program with a PBG option has requirements beyond those listed in 9.6.2. Specifically the PBG option requires that you include 12 credits from the following list in your program of study:

1. BOT/MCB 575. Comparative Genomics (4)
2. CROP 590. Experimental Design in Agriculture (4)
3. PBG 507. Seminar (1-2)
4. PBG 519. Current Topics in Plant Breeding and Genetics (2)
5. PBG/HORT/CSS 530. Plant Genetics (3)
6. PBG/HORT/MCB 541. Plant Tissue Culture (4)
7. PBG/HORT/CSS 550. Plant Breeding (4)
8. PBG/MCB/CSS 620. DNA Fingerprinting (1)
9. PBG/MCB/CSS 621. Genetic Mapping (1)
10. PBG/MCB/CSS 622. Mapping Quantitative Trait Loci (1)
11. PBG 650. Advanced Plant Breeding and Quantitative Genetics (3)

9.7.1.2 Crop Science Degree with ENT Option

The Crop Science Graduate Program with an ENT option has requirements beyond those listed in 9.6.2. Specifically the ENT option requires that you include 12 credits from the following list in your program of study:

12. ENT 507. Seminar (1-2)
13. ENT/HORT 518. Current Topics in Entomology (2)
14. ENT 520. Insect Ecology (3)
15. ENT 542. Principles of Integrated Pest Management: Systems Design (4)
16. ENT/Z 547X. Insect Systematics: Diversity and Evolution (5)
17. ENT 599. Special Topics: Explorations in OSU Entomology (2)
18. Z 540. Insect Physiology (3)

9.7.3 Soil Science Degree

The Soil Science graduate program requires the following courses in addition to the general requirements for the program of study established by the Graduate School:

1. SOIL 507/607 Graduate Seminar (variable credits). See section 9.5 for details.
2. At least one term of a teaching activity with simultaneous registration in SOIL 509. Teaching activity is optional for non-thesis MS students.
3. While you may elect to sign up for the E-campus version of classes, your advisor and sponsor may not have funds to cover the extra cost of E-campus courses. Please discuss with your advisor and your sponsor prior to registration.
4. All students who enter the program after January 1, 2014 must have responsible conduct of research training. This requirement can be met in one of two ways:
 - a. Complete the OSU Research Office Collaborative Institutional Training Initiative (CITI) on-line physical science training module and obtain a certificate of completion. See: https://www.citiprogram.org/for_details, **or**
 - b. Complete a formal class offered by the Graduate School or other campus unit that specifically addresses responsible conduct of research/research ethics. I
 - c. Further, individual research projects and research groups are expected to have internal discussions about responsible conduct of research.
5. All students who entered the program after January 1, 2015 must complete the following training modules and obtain completion certificates:
 - a. AlcoholEdu – High-Risk Alcohol Prevention
 - b. HAVEN – Sexual Violence Prevention

See <http://studenthealth.oregonstate.edu/welcome> for details on these trainings.

9.8 Blanket Courses

Blanket-numbered courses provide course credit for the many activities that are part of your program but don't fit neatly into a traditional course structure. Blanket courses have a zero middle digit (e.g., 501-509 or 601-609). They may be repeated up to the maximum totals described for each degree program of study. Blanket courses in CSS include:

- **Thesis credits**
 - CROP/PBG/ENT/SOIL 503 for MS students
 - CROP/PBG/ENT/SOIL 603 for PhD students.

Research credits

- CROP/PBG/ENT/SOIL 501/601.
- **Reading and Conference**
 - CROP/PBG/ENT/SOIL 505.
 - These credits are given for special coursework that does not have a formal course number.
 - This can be a way to gain credit for reading and discussing the body of literature on a specific topic and to gain credit for that work.
- **Seminar**
 - CROP/PBG/ENT/SOIL 507.
 - See section 9.6, “Required Courses.”
- **Teaching Practicum**
 - CROP/PBG/ENT/SOIL 509.
 - Credit is awarded under this course number for effort in teaching activities.
 - See specific teaching requirements in Section 9.6 “Required Courses.”

9.9 Teaching Experience

- Your committee, major advisor, or the supervisor of your teaching experience will determine an appropriate number of CROP/PBG/ENT/SOIL 509 credits to include on your official program of study.
- Typically, assisting in an assigned undergraduate course equates to 3-4 credits of CROP/PBG/ENT/SOIL 509.
- Given career plans, some students may enroll in additional CROP/PBG/ENT/SOIL 509 credits.
- CROP/PBG/ENT/SOIL 509 credits cannot be taken in association with a paid GTA responsibilities.
- Other possibilities for teaching credit include assisting in the presentation of an Extension program, field day, or other event, provided the experience includes direct contact with students or stakeholders. These experiences shall include preparation and presentation of one or more lectures or Extension programs. They may include significant leadership during labs and recitation sections.

9.10 Responsible Conduct of Research

“The Responsible Conduct of Research (RCR) Program at Oregon State University has been designed to meet the requirements outlined in Section 7009 of the America COMPETES Act, which mandates training in the responsible conduct of research for all proposals submitted on or due after January 4, 2010. As a recipient of National Science Foundation (NSF) funding, OSU’s plan is designed to make available programs and materials that will increase the knowledge of and facilitate the practice of responsible research.”

<http://research.oregonstate.edu/osp/responsible-conduct-research>

See OSU Research Office CITI requirement, Section 9.6 “Programs of Study.”

9.11 Thesis, Dissertation, or Project

Scientific research involves the application of the scientific method to generate information, the synthesis and analysis of that information, and the vetting of that synthesis and analysis by peers. The MS and PhD programs are designed to give you practical training and experience in each of these elements. The publication of the thesis or dissertation is your contribution to the scientific literature. The work that you do in graduate school will have the greatest impact if it is peer-reviewed and made widely available to others.

Your thesis or dissertation will undergo peer review by your committee and it will be available

to anyone who seeks it. However, the process of writing a thesis or dissertation does not reflect the same rigor in review as that given to journal articles. Students are encouraged to write MS and PhD theses chapters in the form of one or stand-alone scientific journal articles, ready to submit to a journal.

The department recommends the scientific paper format because it provides a professional writing experience, speeds publication of thesis results, and encourages organized compartmentalization of thesis research planning into publishable segments. The department requires a literature review section in all theses. It also encourages the use of appendices for results of preliminary experiments and other data that do not fit the journal article chapters and may not be published elsewhere. Appendices make data available in raw form so that it can be used by other researchers in meta-analyses or other studies.

The Graduate School has compiled a useful guide for the preparation and formatting of the thesis: <http://gradschool.oregonstate.edu/success/thesis-guide>.

See section 11.3 “Thesis Copies” in this document for departmental expectations about submission of bound thesis copies.

10. DEGREE CREDIT REQUIREMENTS

Be sure to note the general degree and credit requirements for all graduate programs:

<http://catalog.oregonstate.edu/ChapterDetail.aspx?key=38>

- All graduate study programs must consist of a minimum of 50% graduate stand-alone courses.
- The remaining credits may be the 500 component of 400/500 “slash” courses.
- All programs require training in the Responsible Conduct of Research, as detailed in Section 9.9.

10.1 Master of Science (MS)

See the graduate catalog for the formal list of requirements:

<http://catalog.oregonstate.edu/ChapterDetail.aspx?key=39>

- ☐ A minimum of 45 graduate credits is required.
- ☐ A minor is not required. However, if a minor field is identified, approximately two-thirds of the coursework (30 credits) must be in the major and one-third (15 credits) in the minor field. Major courses may be selected from those in CSS as well as from those offered by other departments.
- ☐ At least one credit of seminar (CROP/SOIL/PBG/ENT 507) is required, and two credits are required for the PBG options.
- ☐ 3-4 teaching practicum credits (CROP/SOIL/PBG/ENT 509) are required.
- ☐ 6-12 thesis credits (CROP/SOIL/PBG/ENT 503) are required.
- ☐ A maximum of 15 credits of graduate work completed at another accredited institution, or in the Division of Continuing Education of the Oregon University System, may be transferred, provided that:
 - the work fits into a logical program for the degree,
 - the transfer is approved by the student’s committee *and* by the Graduate School, and
 - grades of A or B have been earned.
 - Students must submit a [Transfer Credit Request](#) form before the end of their first year of study if they wish to include within their course study program at OSU.

Credit granted for work completed at another institution is tentative until validated by work in residence. Credit for out-of-state Extension courses, correspondence courses, institute courses, certain distance education courses, and other non-traditional courses are not

acceptable. See the Graduate Catalog for a complete description of rules and procedures regarding transfer credits.

- ❑ No more than 9 credits of blanket-numbered courses may be applied toward the minimum 45-credit MS degree. This does not include required **thesis hours** (CROP/SOIL/PBG/ENT 503).
- ❑ Thesis and non-thesis tracks are offered and subject to the approval of major advisor and graduate committee.
- ❑ All work for an MS degree must be completed within seven years, including transferred credits, coursework, thesis, and all examinations.

10.2 Doctor of Philosophy (PhD)

See the graduate catalog for the formal list of requirements:

<http://catalog.oregonstate.edu/ChapterDetail.aspx?key=40>

- There is no credit requirement for coursework, but the equivalent of at least three years of full-time work beyond the baccalaureate is required. Three years of graduate work roughly translates into: 3 years x 3 terms per year x 12 credits per term = 108 hours.
- A minimum of 36 credits must be completed in residence at Oregon State University.
- At least three terms of graduate academic work must be full-time (at least 9 credits per term) and completed in residence. These three terms of full-time enrollment need not be consecutive.
- At least two credits of seminar (CROP/SOIL/PBG/ENT 607) are required, and three credits are required for the PBG options.
- 3-4 teaching practicum credits (CROP/SOIL/PBG/ENT 609) are required.
- At least 36 thesis credits (CROP/SOIL/PBG/ENT 603) are required.
- No more than 15 blanket-numbered credits may be applied toward the minimum 108-credit doctoral program. This does not include required **thesis hours** (CROP/SOIL/PBG/ENT 503).
- If a minor is declared, it must consist of at least 18 credits, or 15 credits for an integrated minor.
- Students must submit a [Transfer Credit Request form](#) before the end of their first year of study if they wish to include within their programs of study at OSU.
- Graduate courses to be transferred to a doctoral degree program can be courses that were used to satisfy the graduate course requirements for a graduate certificate or a master's degree (or equivalent).
- Selected 700-level may be listed on doctoral programs of study if the courses are deemed equivalent to graduate-level learning and if the graduate committee approves.
- There is no limit on transfer credit toward the doctoral degree as long as the doctoral residence requirement is satisfied.
- Credit granted for work completed at another institution is tentative until validated by work in residence. Credit for out-of-state Extension courses, correspondence courses, institute courses, certain distance education courses, and other non-traditional courses are not acceptable. See the Graduate Catalog for a complete description of rules and procedures regarding transfer credits.

11. EXAMINATION REQUIREMENTS

Formal examinations are in addition to the elements and requirements of your program of study. The nature and timing of these examinations are dictated by the Graduate School, and these policies must be adhered to for examinations to be judged valid:

http://oregonstate.edu/dept/grad_school/finalexams.php.

11.1 Crop Science Examination Requirements

Examinations for the MS in Crop Science

- a) Crop Science Master of Science (MS) degree candidates are not required to take a written exam; however, major advisors may use a written examination to prepare students for the oral examination. The major advisor may require a written examination as another means of assessing student achievement. Any written exam for MS candidates is subject to the consensus of the graduate committee.
- b) Final Oral Examination for the MS Degree in Soils
 - i) The thesis or research paper and coursework examinations are combined into one examination for MS degree candidates. The candidate should expect to be examined on both parts. The examination is restricted to the graduate faculty, usually just the candidate's committee.
 - ii) The formal oral presentation by the candidate is open to the public, and should be publicized.

Examinations for the PhD in Crop Science

All PhD candidates must complete a written comprehensive examination that is in accordance with OSU guidelines.

- The written preliminary examination must be completed before the oral preliminary examination;
- Copies of the written preliminary examination must be given to committee members at least one week before the oral preliminary examination.
- The oral preliminary examination must be completed one term before the final oral examination, and
- The written examination may be administered in one of two formats: the conventional question and answer format or the written research proposal format.

Conventional Format: Written Preliminary Examination for the PhD in Crop Science

The conventional question and answer examination is developed by the student's major advisor with input from the graduate committee. The examination must:

- 1) address the breadth of knowledge expected of PhD candidates specializing in the candidate's specific area of study;
- 2) be structured to require four hours of work on each of two consecutive days. This will usually take the form of four questions or sets of questions each day;
- 3) be approved by a member of the CSS Graduate Faculty Committee. The committee member will not evaluate the examination for specific content but for evidence of questions requiring breadth, depth, and synthesis of knowledge. They also will assess that the written preliminary examination is neither too long nor too short.
- 4) It is the student's responsibility to complete and submit the appropriate pre-examination Graduate School paperwork and to schedule the exam.

The major advisor has final authority in the development of written preliminary examination content. It is recommended but not required that major advisors that committee members and other faculty submit a question or questions that will require one hour to answer. The graduate council representative may submit if desired.

- Following completion of the written preliminary examination, the major advisor will return answers to the authors of the questions. The authors will indicate to the major advisor whether the student passed their question(s). All questions

shall be evaluated within two weeks of the test date.

- All written examination answers will be provided to the student's graduate committee and will be considered in deciding whether the student passes the preliminary qualifying examination.
- If a student does not pass one or more sections of the examination, they have one opportunity to be re-examined and to pass those sections. Additional coursework may be suggested by the graduate committee, or the student may be encouraged to work towards an MS rather than PhD degree.

Conventional Format: Oral Preliminary Examination for the PhD in Crop Science

The preliminary oral examination is a comprehensive evaluation of the student's general knowledge and ability to convey and discuss scientific ideas, theories, and techniques. It is intended to review coursework and related subject matter. This examination is normally about two hours in length.

- The major advisor will officiate the examination and, with the graduate council representative, ensure that all committee members have adequate opportunity to ask questions.
- The graduate council representative will also ensure that the student is treated fairly in the examination process.
- It is the student's responsibility to complete and submit the appropriate pre-examination Graduate School paperwork and to schedule the exam.

Written Proposal Format: Preliminary Examination for the PhD in Crop Science

An alternative approach to the examinations for the PhD in Crop Science is a written research proposal followed by an oral defense and examination. This examination evaluates the student's ability to access and interpret the scientific literature, to think critically, to write creatively, to articulate ideas, and to demonstrate an understanding of general and specific fields of study. This examination will also test the student's ability to develop, investigate, and defend an original research idea. The originality, scholarly quality, and the technical feasibility of the proposal are important components of this assessment.

The preliminary examination will consist of two parts: a written research proposal and an oral preliminary defense and examination.

- a) Before the end of the third year of study, a PhD student must submit for approval to the graduate committee a one-page abstract or outline on a topic for a research proposal.
- b) The topic of the proposal must be different from the student's thesis research project.
- c) The topic of the proposal must be reviewed and accepted or rejected by the committee within one week of submission. A topic may be approved with one dissenting vote.
- d) The student writes a research proposal on the approved topic. The proposal must include these sections: introduction, objectives, rationale and significance, research design and methods, timeline, literature cited, and personnel required to achieve the objectives.
- e) The written research proposal is limited to 10 single-spaced pages (references, timeline, and personnel information will not be included in the page count).
- f) The written proposal and a written proposal checklist and approval form, found in Appendix 1, must be submitted to the committee not more than four weeks after the committee has approved the topic.
- g) The committee must vote to pass the proposal within one week of proposal submission.

- h) If two or more members of the committee vote “no-pass,” the student will have two weeks to modify and re-submit the proposal for a second decision.
- i) The committee must vote to pass the revised proposal within one week of re-submission.
- j) The student will fail the written examination if the revised proposal receives a no-pass decision by two or more members of the committee.
- k) The student must set a date for the oral examination within three weeks of the decision to pass the proposal.

Written Proposal Format: Oral Preliminary Defense and Examination for the PhD in Crop Science

The oral examination will consist of two parts:

- A one-hour defense of the written proposal. The defense of the proposal will include an introduction of the proposal by the student followed by questions from the committee members, and
- A one-hour general oral examination not restricted to the proposal. The open questions may include anything related to science or the student’s training that the committee members deem relevant. The decision to pass is made according to the rules of the Graduate School, which give the committee the options:
 - to pass,
 - not to pass and allow a re-examination,
 - not to pass and to terminate the student’s work, or
 - to recess and re-convene within two weeks.

Final Oral Examination for the PhD in Crop Science

At least one complete academic term must elapse between the preliminary oral and the final oral examination.

- a) The formal oral presentation by the candidate is open to the public and should be publicized. Examination of the candidate and final deliberation will be conducted only by the graduate committee.
- b) The examination normally concentrates on the thesis.
- c) It is the student’s responsibility to complete and submit the appropriate pre-examination Graduate School paperwork and to schedule the exam.

11.2 Soil Science Examination Requirements

Examinations for the MS in Soil Science

- a) Soil Science Master of Science (MS) degree candidates are not required to take a written exam; however, major advisors may use a written examination to prepare students for the oral examination. The major advisor may require a written examination as another means of assessing student achievement. Any written exam for MS candidates is subject to the consensus of the graduate committee.
- b) Final Oral Examination for the MS Degree in Soil Science
 - i) The thesis or research paper and coursework examinations are combined into one examination for MS degree candidates. The candidate should expect to be examined on both parts. The examination is restricted to the graduate faculty, usually just the candidate’s committee.
 - ii) The formal oral presentation by the candidate is open to the public, and should be publicized.

Examinations for the PhD in Soil Science

Written Preliminary Examination for the PhD in Soil Science

Conferral of the PhD follows satisfactory performance on written and oral preliminary and final examinations.

- a) All PhD candidates must complete a written comprehensive examination that is in accordance with OSU guidelines.
- b) Copies of the written preliminary examination must be given to committee members at least one week before the oral preliminary examination.
- c) The written preliminary examination must be completed before the oral preliminary examination;
- d) The oral preliminary examination must be completed one term before the final oral examination, and
- e) The student's major advisor is responsible for designing the written preliminary examination, which will include two questions from each of the following areas:
 - i) Soil Chemistry
 - ii) Soil Genesis, Morphology and Classification
 - iii) Soil Biology and Biochemistry
 - iv) Soil Physics
- v) Questions may be open or closed book. The author of each question must indicate which questions are open book or closed book will make this determination. In this context, "open-book" refers to text, library or web resources.
- vi) Each author will also indicate approximately how much time should be allotted to each question. Typically this is 1-2 hours per question.
- vii) In addition, the graduate committee member whose discipline is not soil science may submit two or more questions.
- viii) All questions are to be appropriate to the program of study, student research, and student's professional goals.
- f) Following completion of the written preliminary examination, the major advisor will return answers to the authors of the questions. The authors will indicate to the major advisor whether the student passed their question(s). All questions shall be evaluated within two weeks of the test date.
- g) All written examination answers will be provided to the student's graduate committee and will be considered in deciding whether the student passes the preliminary qualifying examination.
- h) If a student does not pass one or more sections of the examination, they have one opportunity to be re-examined and to pass those sections. Additional coursework may be suggested by the graduate committee, or the student may be encouraged to work towards an MS rather than PhD degree.

Oral Preliminary Examination for the PhD in Soil Science

The oral preliminary examination evaluates a PhD student's ability to use the scientific literature, to think critically, to write creatively, to articulate ideas, and to demonstrate an understanding of general and specific fields of study. This examination will also test the student's ability to develop, investigate, and defend an original research idea. The originality, scholarly quality, and technical feasibility of the proposal will be evaluated.

- a) The PhD student will take the oral preliminary examination within six months after passing the written examination. The graduate committee and the soils graduate faculty must approve any exception to this six-month timeline.
- b) In preparation for the oral examination, the student will prepare a research proposal that is not directly related to his/her thesis topic. The intent of this exercise is for the student to demonstrate the ability to identify a researchable question, formulate testable hypotheses, and design experiments to definitively evaluate the hypotheses.
- c) The preliminary examination will consist of two parts:
 - i) Written Research Proposal:
 - (1) Before the time of the oral preliminary exam, the PhD student must submit to the committee for approval a one-page abstract/outline for a research proposal.
 - (a) The topic of the proposal must be different from the student's thesis research project.
 - (b) The topic of the proposal must be reviewed and accepted or rejected within one week of submission. The committee may accept a topic with one dissenting vote.
 - (c) The student writes a research proposal on the approved to include: introduction, objectives, rationale and significance, research design and methods, timeline, literature cited, budget with justification, and personnel required to achieve the objectives.
 - (d) The written research proposal should be 10-15 single-spaced pages (references, budget, and personnel information will not be included in the page count).
 - (e) The written proposal and a written proposal checklist and approval form (see Checklists and Timetables section of this document) must be submitted to the PhD student's committee at least six weeks prior to the anticipated date for the oral exam.
 - (2) Within one week of submission, the committee must vote to approve the proposal as suitable for the exam.
 - (3) In the event that the proposal is not approved by two or more members of the committee, the student will have two weeks to modify and re-submit the proposal to the committee for a second decision.
 - (4) Within one week of re-submission, the committee must vote to approve the revised proposal.
 - (5) A PhD student will fail the oral examination if the revised proposal is not approved by two or more members of the committee.
 - ii) The preliminary oral examination begins with a 20-minute public presentation of the proposal followed by a comprehensive examination by graduate committee. The examination evaluates the student's general knowledge and ability to convey and discuss scientific ideas, theories, and techniques.

- (1) A Written Proposal Checklist and Approval Form, found in Appendix 1, must be attached to the written proposal when submitted for review by the student's committee. Upon review, the committee members will return the written proposal, review comments, and a completed form to the student.
- (2) It is the student's responsibility to complete and submit the appropriate pre-examination Graduate School paperwork and to schedule the exam.

Oral Final Examination for the PhD Degree in Soil Science

- a) At least one complete academic term must lapse between the preliminary and the final oral examinations.
- b) The formal oral presentation by the candidate is open to the public and should be publicized.
- c) The graduate committee alone will conduct the examination of the candidate. Neither the exam nor the final deliberation are public.
- d) The examination normally focuses on the thesis or dissertation.
- e) It is the student's responsibility to complete and submit the appropriate pre-examination Graduate School paperwork and to schedule the exam.

11.3 Thesis Copies

The Graduate School does not require you to submit a paper copy of your thesis or dissertation but does have other filing requirements. See the Graduate School website for current requirements. Please note that if you miss deadlines, you may be required to register for minimal credits in the following term or may not obtain your degree in your desired timeframe.

The department requires that you submit two copies of your thesis, bound at departmental expense, for departmental use. Talk with the office staff about where to have this work done. You may have two personal copies printed at no charge at the [Student Multi-media Services](#), located on the 2nd floor of the Valley Library. These copies are not suitable for departmental use.

12. KEEPING ON TRACK

12.1 Evaluation of Progress

Each year, you and your major advisor are required to evaluate your performance and progress towards your degree. This is a formal process beyond the routine communications you have with your major advisor. See section 7 of this document. The annual evaluation is a structured method to receive feedback and constructive criticism. The evaluation process and record should point out strengths, successes, and areas for improvement. It is intended to contribute to your development as a scientist and a professional. This is an excellent opportunity for a comprehensive and reflective conversation with your major advisor about your program. It is also an opportunity to develop activities to enhance your program for the coming year.

After the evaluation, your major advisor must complete the form and provide a copy to the graduate program coordinator and the department head by the last day of the fall term each year. After it is reviewed, the evaluation form will be placed in your graduate file.

Your satisfactory progress will be assessed against these metrics:

Graduate Committee

Selecting your major advisor before you start your graduate program and graduate committee as follows:

- For PhD candidates, this should be accomplished before completing 5 quarters of study; for

- MS candidates, before completing 2 quarters of study.

Annual Meetings

- Both PhD and MS candidates are expected to hold annual meetings with their graduate committee and provide oral and written progress reports.
- The committee will discuss progress and determine whether it is satisfactory. If not, a remedial course of action will be outlined and a follow-up meeting will be scheduled within 6 months.

Program of Study

- All graduate degree candidates must submit an approved, signed program of study form to the Graduate School.
- For PhD candidates, this should be done before the end of the 5th term of enrollment; for MS candidates, before completing 18 hours of coursework.

Research

Graduate degree candidates are expected to prepare a research proposal and initiate research under the direction of their major advisor within the same timelines as submitting the program of study form (PhD candidates prior to the end of the 5th term, MS candidates before completing 18 hours of coursework).

Coursework

- PhD candidates are expected to satisfactorily complete required coursework within the first 3 years of enrollment. MS students are expected to satisfactorily complete required coursework within the first 2 years of enrollment.
- For satisfactory progress, all graduate students must maintain an overall grade-point average of *at minimum* 3.00 on a 4.00 scale.
- Courses for which a grade below 2.00 is received do not contribute to the graduate program of study.
- A minimum grade-point average of 3.00 is required before the final oral or written exam may be scheduled.

PhD Qualifying Exams

Passage of the written preliminary comprehensive examination and the preliminary oral examination is required before the end of the third academic year of enrollment.

12.2 Graduate Program Checklist

There are separate checklists for MS and PhD students provided at the end of this handbook. The Graduate School also provides a guide to track deadlines and milestones in your graduate study: http://oregonstate.edu/dept/grad_school/deadlines.php.

13. SCHOLARSHIPS AND AWARDS

13.1 Travel Awards

Attending and presenting at professional meetings are important aspects of academic life. The Department has several endowments that can provide funding for professional meetings and other travel. The typical award is \$250 per meeting. Application deadlines for the following quarter are April 15, July 15, October 15, January 15. See Emmalie Goodwin for application materials. The application packet you submit for departmental travel awards will also be considered for nomination for the graduate school travel award. Information on their program can be found at: http://oregonstate.edu/dept/grad_school/travel.php. Submit your email of interest to Emmalie Goodwin.

You or by your major advisor will pay any additional costs. Follow Departmental travel

procedures detailed in Section 14.7 below. In your pre-approval request, indicate that you are also requesting a travel award and specify the type and purpose.

13.2 Department Administered Scholarships for Continuing Students

The Department administers several annual scholarships that are available for continuing students in Crop Science and Soil Science graduate programs. Each scholarship has been funded by a different donor and each has slightly different criteria as listed below. Award amounts vary based on the wishes of the donors and the balances available. Students interested in scholarship funding must use the College of Agricultural Sciences (CAS) scholarship application process and meet the published deadlines for application.

Find department level scholarship information here:

<http://cropandsoil.oregonstate.edu/content/scholarships-financial-aid-other-funding>

13.3 College of Agricultural Sciences scholarships

<http://aqsci.oregonstate.edu/scholarships-and-awards>

13.4 Awards Administered by the Graduate School

The Graduate School administers several fellowships and scholarships that can be found here: http://oregonstate.edu/dept/grad_school/fellowships.php

You must be nominated by the department for these scholarships. Speak to your major advisor early if you would like to be nominated for one of these awards.

13.5 The OSU Valley Library

The OSU Valley Library subscribes to Grant Forward, a database with extensive offerings for supporting research and education. <https://www.grantforward-com.ezproxy.proxy.library.oregonstate.edu/index>

13.6 External Scholarships

There are a number of scholarships available from external sources. The Graduate School has compiled a list of some of these here, and other exist:

http://oregonstate.edu/dept/grad_school/externalfellowships.php.

14. POLICIES, PROCEDURES, AND REGULATIONS

14.1 Use of State Vehicles

OSU maintains a fleet of vehicles for use for official business. See <http://motorpool.oregonstate.edu/> to reserve a vehicle, and learn about rates, and regulations.

Graduate students must request written permission to drive a state vehicle. The request is signed by the department manager or department head and submitted to Transportation Services at least three working days before the first time of travel.

- University policy requires that all drivers have a valid U.S. driver's license.
- International driver's licenses are not acceptable when driving state cars.
- Drivers reserving an 8 or 12 passenger van are required to watch the [van safety video](#) and pass the test in addition to being an [authorized driver](#).
- Drivers are responsible for following all university and state regulations pertaining to use and operation of state vehicles.
- State vehicles **may never** be used for personal purposes.
- Partners, children or pets **may never** be transported in state vehicles.

Contact Emmalie Goodwin for information about making reservations for rental cars. OSU has a

favorable rental contract with Enterprise-A-Car.

14.2 Laboratory and Facilities Policy

1. Authorized departmental personnel are provided with keys to appropriate labs and facilities. The major advisor authorizes key requests which are approved by the department administrative manager or department head.
2. Each room, lab, greenhouse section, and special facility has a designated faculty supervisor. Supervisors are responsible for coordinating and supervising the use of facilities for which they have responsibility. Present your request to use facilities, space, or equipment to the appropriate supervisor.
3. All departmental facilities and equipment are the property of the University and the Department—not of individual project leaders or supervisors. The program of the responsible supervisor normally has scheduling priority over other departmental or cooperating department programs.
4. Each research group must provide its own expendable supplies and chemicals, as well as the costs of such supplies used by others, and for repair costs resulting from unauthorized or negligent use of equipment. Consult with your project leader or major advisor about cost commitments for expendable supplies and shared equipment.
5. All facility users are expected to respect and comply with established use policies. You must comply with check-out list policies, clean-up and glassware washing policies, equipment operation training requirements, and with the times assigned for use of facilities by the supervisor.
6. Individuals who do not respect or comply with established procedures and policies may be denied use of facilities. Use denial recommendations are made by facility supervisors and subject to approval by the department head.

14.3 Safety

Labs, research farms, greenhouses, and remote field sites have inherent dangers. If you work at any University laboratory, research and experiment station property, research farm, or greenhouse ***you are required to complete safety training before beginning work*** and

periodic refresher courses. The department has summarized Information on university safety policies, procedures, and provides access to training modules on its website:

<http://cropandsoil.oregonstate.edu/content/crop-and-soil-science-safety-program>.

Some equipment and facilities may require additional training. Check with your supervisor on specific training needs.

Immediately alert your immediate supervisor, major advisor, or the OSU office of Environmental Health and Safety if you have safety concerns: <http://oregonstate.edu/ehs/>.

14.4 Copy Machine Use

The Department has copy machines in each administrative office. These are available for faculty and students to copy items related to teaching, research, and Extension projects.

Office staff have the first priority to use the copiers. Personal copying is not allowed.

Personal activities for which you may *not* use the departmental copier:

- Materials as a part of your class assignment,
- Copying thesis material for distribution to committee members,
- Copying journal articles and other materials for the student's files, or
- Any items of a personal nature

Check with the office staff:

- if you are unsure whether a copy job is personal or official business or
- if you do not have an assigned copier access code. Copy code activity is recorded and audited monthly.

The departmental copy machine is designed for low-volume copying. Copy jobs of multiple more than 100 pages are sent to *Printing Services* (<http://printmail.oregonstate.edu/>). At Printing Services, costs are reduced as the number of copies increases. When preparing materials for meetings, programs, or large classes, plan ahead and use Printing Services.

Publicly-owned resources are for official use only. The following guidelines apply to graduate student use of copiers:

Official activities for which you may use the departmental copier:

- Activities that contribute directly to the teaching, Extension, and research programs of the Department or University,
- Preparation of materials for class by a teaching assistant,
- Abstracts for distribution to seminar participants,
- Preparation of manuscripts for publication, even if included as a part of a student's thesis.

14.5 Poster Printing Policy and Procedure

When preparing posters for academic presentations, be sure to follow the current policies, outlined in detail at the IT Website (<http://support.roots.oregonstate.edu/content/printing-posters>).

1. Send an email to Roots Support one week or more in advance to advise them of your need for poster printing services.
2. Submit your poster as a pdf file a minimum of three days in advance of the day needed.

Quick Tips for Posters

The plotter paper is on a roll that is either 42 or 36 inches wide, make one dimension of your poster one of those two sizes.

The plotter does not print to the edge of the paper; leave a one-inch margin around the poster content.

Other Poster Printing Options

1. OSU Printing and Mailing Services (<http://printmail.oregonstate.edu/>) also can plot posters. Contact them for more information.
2. Students can plot a limited number of free posters at the Student Multimedia Presentation Center. Contact them for more information: <http://is.oregonstate.edu/academic-technology/sms>.

14.6 Travel Policies and Procedures

Pre-authorization is required for all out-of-state travel. It is also required for any travel for which you request a professional meeting travel award. International travel requires more scrutiny and levels of approval.

How to obtain travel pre-authorization:

1. Obtain pre-approval for travel from your major advisor or grant principal investigator and the department head. Information required is provided in the email template below. For international travel on grant funds, Office of Sponsored Research and Award (OSRAA)

must also approve the trip.

2. Azumano is the University's contract travel agency. You may book a ticket online. If you book your travel through Azumano, have the agent send your itinerary to Emmalie for authorization to purchase.
3. If you drive instead of flying, document with a quote from the travel agency that driving costs less.
4. Travel to the Portland airport can be billed directly to the department, rather than your personal credit card if you:
 - Book the HUT Shuttle to PDX through the travel agency when you book your airline ticket.
 - Alternately, book a rental car through the travel agency when your airline ticket for transportation to PDX or at your destination.

Azumano Corvallis (541) 757-9792 (800) 334-2929 Fax: (541) 758-1631
azcorvallis@azumano.com

5. Conference registrations and abstract submission fees can be charged to the department credit card. Send the information by email to one of the office specialists or ask one of them to come to your computer and complete the transaction.
6. You must pay for hotels, taxis and shuttles at your destination. Keep all receipts for hotel, taxi, shuttle, etc. Hotel rates are covered up to current per diem rates. Emmalie can provide the current per diem rates for the cities to which you are travelling or check online through: <http://www.gsa.gov/portal/category/100120>. You will be reimbursed after you return.
7. It is not necessary to keep meal receipts, as the University pays a flat daily rate for meals.
8. Be sure to consult your major advisor or the entity providing travel funds before planning travel and submitting reimbursement requests. Some funding sources may not reimburse meals and incidentals or they may be reimbursed at a lower rate than the prescribed OSU maxima.
9. If you are gone for 5 days or more, you are entitled to a travel advance: <https://oscar.oregonstate.edu/Resources/SubNav.aspx?NavPage=13&submenu=T13>
10. All international travel requires registration and insurance with the university risk management. The registry can be found on the [International Programs website](#).

Pre-approval travel email template:

Provide the following information in an email. Distribute the email to the grant's principal investigator, your major advisor, the department head, and Emmalie Goodwin:

Subject line: pre-approval for travel
 Traveler's name
 Destination
 Date of departure
 Date of return
 Index
 Activity code (if applicable)
 Reason for travel

Estimated cost of trip, include:

Transportation
 Registration fees
 Meals
 Lodging
 Other
 Total

The Department Head will authorize your travel using the “reply all” feature. If you have any questions, please contact Emmalie: 541-737-5093, emmalie.goodwin@oregonstate.edu.

15. RESEARCH SUPPORT FACILITIES

15.1 On-campus

Please review the Laboratory and Facilities Policy, Section 14.2 of this document.

As a graduate student, you have direct access to a number of shared facilities:

<http://research.oregonstate.edu/shared-research-facilities-and-services>.

Much of the equipment and some of the services offered by these facilities are available at no charge for graduate student use or for a small fee to cover expendable supplies. However, the majority of services are fee-based, at a discounted rate to the OSU community. The campus facilities most commonly used by our students and program include the following.

Agricultural and Life Sciences Building (ALS), Crop Science (CS), Cordley Hall, and Seed Lab

The department’s main office is located in 109 Crop Science and a satellite office is in ALS 3017. Several of our entomology faculty have offices and labs in Cordley Hall. Our Seed Laboratory is a fee-based laboratory to support Oregon’s seed industry. Offices, teaching and laboratory facilities are located in all three buildings.

Greenhouses <http://agsci.oregonstate.edu/greenhouse/>

Two major greenhouse complexes on campus offer some 100,000 square feet total growing space for teaching and research. They are the College of Ag Science East (located immediately west of Cordley Hall) and West Greenhouses (about 1 block west of 30th Street between Orchard Avenue and Campus Way).

All new users (graduate students, faculty, and staff) are required to complete an initial orientation and safety training **before starting work in the greenhouse**. Contact greenhouse staff to arrange this orientation and training:

<http://agsci.oregonstate.edu/greenhouse/about-us/staff>.

Greenhouse space is allocated on a long-term basis to primary users through their departments. Primary users may make short-term assignments to secondary users. Users are responsible to the greenhouse manager to coordinate use or any modification of the facilities.

Research Farms

<http://agsci.oregonstate.edu/farmunit>

Department faculty use three research farms:

- Hyslop Field Lab,
- Vegetable Farm, and
- Lewis Brown Farm.

Plantings and field laboratories at these locations are used in field plot research work.

Graduate students provide written requests to use these farms for research purposes, with requests approved by their major advisor and the College of Agricultural Sciences Farm

Committee. These written requests must be made in advance and include materials, methods, and timing. Contact Dan Curry: dan.curry@oregonstate.edu

Center for Genome Research and Biocomputing (CGRB)

3021 Agriculture and Life Sciences Building

<http://www.cgrb.oregonstate.edu/>

CGRB provides services, technical expertise, collaborative functions and share-use equipment for molecular bioscience research at Oregon State University. The Core Labs are a fully staffed facility that serves as a focal point for acquisition and development of new instrumentation and technologies. CGRB provides service in four areas:

- *Genomics*
- *Functional Genomics*
- *Biocomputing and Bioinformatics*
- *Imaging and Image Analysis*

CGRB provides shared instrumentation, including real-time PCR, scanners, robotics and computational facilities for use by walk-in users.

CSS Central Analytical Laboratory; 3079 Agriculture and Life Sciences

Building <http://agsci.oregonstate.edu/cal>

The Central Analytical Laboratory (CAL) provides fee-based analytical services to OSU scientists and cooperating investigators. The CAL also serves as an important resource for Oregon students and Extension clientele seeking information and advice about plant, soil, and water analysis.

Stable Isotope Research Unit; Agricultural and Life Sciences Building

<http://cropandsoil.oregonstate.edu/content/stable-isotope-research-unit>

The Stable Isotope Research Unit analyzes plant, soil, and other types of biological and environmental samples for ^{15}N and ^{13}C abundance by CF-IRMS and by GC-C-IRMS. Our systems include two PDZ-Europa 20/20 isotope ratio mass spectrometers interfaced with Sercon and Europa gas-solid-liquid prep modules and an Agilent Gas Chromatograph.

The OSU Seed Certification Service; 031 Crop Science

Building <http://seedcert.oregonstate.edu/>

The OSU Seed Certification Service in the Department of Crop and Soil Science certifies seed acreage across the state. Seed Certification faculty have a wealth of information about local, regional, national, and international seed certification policies and procedures.

The OSU Seed Lab; Seed Lab Building – Campus

Way <http://seedlab.oregonstate.edu/>

The OSU Seed Lab in the Department of Crop and Soil Science tests hundreds of types of seeds. Seed Lab faculty and staff have a wealth of information about seed testing procedures from around the world. Their extensive seed testing facilities can be used for cooperative research work.

The OSU Herbarium; 2082 Cordley Hall

<http://oregonstate.edu/dept/botany/herbarium/>

The herbarium is the world's most comprehensive collection of Oregon plants and fungi, with over 400,000 preserved specimens. Some identification services are provided, and voucher

specimens are accepted from OSU research projects.

The Oregon State Arthropod Collection; 3029 Cordley

Hall <http://osac.oregonstate.edu/>

A research collection of nearly 3 million preserved insect specimens. The collection is among the largest of university-owned insect collections in the country. It is the largest insect collection in the Pacific Northwest.

Research Office; A312 Kerr Administration

Building <http://oregonstate.edu/research/>

Students and faculty can obtain information about grants, fellowships, etc., from the Research Office. The College regularly notifies via e-mail and provides pertinent information to faculty about upcoming grant and fellowship opportunities.

Statistics Consulting Services; 44 Kidder

<http://stat.oregonstate.edu/content/consulting-services>

The Statistical Consulting Laboratory in the Department of Statistics offers consultation services to University researchers engaged in:

- design of studies and experiments (including proposal preparation)
- statistical and graphical analysis of data
- appropriate choice, application and presentation of statistical methods

Researchers are encouraged to interact with a consultant during the planning stage.

For graduate students at OSU, the [Statistics Student Consulting Service](#) provides free statistical advice on University-related research projects. OSU faculty may also submit consulting requests to the Statistics Student Consulting Service, or they may directly contact the manager of the Statistical Consulting Lab at 541-737-1984. Fee-based consulting can be arranged.

15.2 Off-Campus

Off-campus facilities and resources available to graduate students include the following:

[HJ Andrews Experimental Forest](#)

The mission of the H.J. Andrews Experimental Forest is to support research on forests, streams, and watersheds, and to foster strong collaboration among ecosystem science,

education, natural resource management, and the humanities. Located in the western Cascade Mountains of Oregon, the Forest is administered cooperatively by the USDA Forest Service's Pacific Northwest Research Station, Oregon State University, and the Willamette National Forest. The site is a charter member of the National Science Foundation's Long-Term Ecological Research Program. Through the 1970s, the site was part of the International Biological Programme-Coniferous Forest Biome (IBP-CFB), and in 1976 it was designated a Biosphere Reserve as part of the United Nations' Man and the Biosphere Program. In 1948, the site was established as an Experimental Forest by the US Forest Service.

Branch Experiment Stations

As the state's land grant institution, Oregon State University has a system of eleven branch experiment stations serving the research needs of the state's diverse agricultural and marine enterprises. The OSU AES branch experiment station faculty and staff work with CSS-related research, extension, and teaching programs. Many of the faculty based at the stations are graduate faculty, and can participate fully in graduate committee activities. Graduate students are encouraged to visit these locations to identify research endeavors, to view the research plots and to learn about the applied research activities of the crop, soil, and forestry

industries specific to the regions of their locations.

For the location and focus of each of the branch experiment stations, visit:

<http://agsci.oregonstate.edu/research/oregon-agricultural-experiment-station/oaes-branch-stations>

National Clonal Germplasm Repository, Corvallis

http://www.ars.usda.gov/main/site_main.htm?modecode=53-58-15-00

This US Department of Agriculture (USDA), Agricultural Research Service (ARS) facility is part of the National Plant Germplasm System. It is adjacent to the Lewis Brown research farm on Peoria Road, Corvallis, OR. This unit collects, maintains, evaluates, and distributes clonally propagated pear, hazelnut, hardy kiwifruit, berries and other minor specialty crops. The facility houses four scientists: a small fruit curator, a plant pathologist in charge of *in vitro* culture and cryopreservation, a pear curator, and a molecular geneticist in charge of DNA marker technology.

USDA- ARS-National Forage Seed Research Lab, Campus Way

http://www.ars.usda.gov/main/site_main.htm?modecode=53-58-05-00

The mission of the Forage Seed and Cereal Research Unit is to improve the profitability of forage seed, cereal, hop, and shellfish production systems in the Pacific Northwest in a manner that meets the environmental expectations of society. Forage Seed Lab scientists cooperate extensively with CSS faculty and has specialized facilities to support cooperative projects.

USDA- ARS-Plant Materials Center, Hyslop Field Station

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/plantmaterials/pmc/west/orpmc/>

The Corvallis Plant Materials Center provides plant solutions for northwestern California, western Oregon, and western Washington. Heavily forested coastal terraces, steep mountains, grasslands, foothills, valleys, flood plains, woodland prairies, and savanna vegetation in the Willamette Valley and Puget lowlands typify the topography and natural vegetation they study.

USEPA –Western Ecology Division (Corvallis Environmental Research Laboratory)

<http://www.epa.gov/wed/>

This EPA research facility is a well-equipped facility studying air pollution effects, terrestrial pesticides, and hazardous waste and water. Research areas of special concern to plant scientists include air pollution effects on plants, uptake and effects of pesticides on plants, and

acid rain effects on crop plants. Of particular interest is a unique system to study the uptake and translocation of chemicals by whole plants, and transpiration and photosynthesis monitoring.

16. LIFE BALANCE

Your research can be so engaging and fulfilling that it is easy to devote nearly all of your time to it. However, you should make an effort to engage in some of the other activities and opportunities that Oregon and Oregon State University have to offer. Consult the OSU Calendar to schedule attending activities (<http://calendar.oregonstate.edu/>) including free [weekly lunchtime concerts in the MU](#) or one of the numerous other events, lectures, and exhibitions, that are taking place on campus; work out at the [Dixon Recreation Center](#); take up a hobby at the [OSU Craft Center](#); join a [sports club](#); see some of [Oregon's natural beauty](#); [volunteer for university or community programs](#), a [cultural night](#) sponsored by the many international associations.

The various demands of graduate school can also cause stress, anxiety, and more serious and debilitating mental illness. The University offers a number of resources to help. A good place to start is Counseling and Psychological Services (CAPS): <http://oregonstate.edu/counsel/>.

One important service that CAPS offers is after-hours crisis counseling. The University is committed to supporting the success of all students; there is no stigma in requesting services, and your participation can be confidential. **To access a counselor anytime call their main number: 541-737-2131.** CAPS is also home to the Mind Spa, a unique sanctuary where you can soothe your mind, body, and spirit: <http://oregonstate.edu/counsel/mind-spa>.

APPENDIX 1: Forms and Checklists**TIMETABLE FOR MS THESIS STUDENTS**

(See the Graduate School's *Graduate Student Guide to Success* for additional information)

Year	Activities	Date Completed
1	<input type="checkbox"/> Choose major advisor(s)	_____
	<input type="checkbox"/> Choose committee members and declare minor (if desired)	_____
	<input type="checkbox"/> Send Program of Study Statement to Graduate Faculty for review by end of second term	_____
	<input type="checkbox"/> Secure Graduate Council Representative for your graduate committee	_____
	<input type="checkbox"/> File official OSU Graduate Program of Study form with Graduate School before finishing 18 credits	_____
2	<input type="checkbox"/> Before scheduling thesis, file the "Approval to Proceed with Final Defense" Form with Graduate School, which includes thesis title approval	_____
	<input type="checkbox"/> Schedule thesis defense and provide a copy of the thesis at least one week before the defense date	_____
	<input type="checkbox"/> Give thesis seminar	_____
	<input type="checkbox"/> Submit final thesis materials, per Graduate School Guidelines, to Graduate School no later than six weeks after exam	_____
Before graduating, be sure to fulfill		
	<input type="checkbox"/> Program requirements	_____
	<input type="checkbox"/> Teaching requirements	_____
	<input type="checkbox"/> Seminar requirements	_____
	<input type="checkbox"/> Ethics training/certificate	_____
	Schedule exit interview with department head	_____

Appendix II

Rubric for Assessing Graduate Work in the Department of Crop and Soil Science

Student's name: _____; Date: _____; MS or PhD: _____

Title: _____

Check one: Proposal seminar _____; Prelim exam: _____; Defense _____

For each of the learning outcomes below, please choose the score which best corresponds to the overall level demonstrated in the student work using the attached rubric for guidance. (6/5 = *Mastering*; 4/3 = *Developing*; 2/1 = *Minimal*; N/A = *Unable to rate*). Please use whole numbers or increments of 0.5.

Learning Outcome	Score
1. Knowledge of Field. Demonstrates adequate breadth and depth of knowledge of the field in their area of research.	
2. Evaluation. Appropriately designs, conducts, analyzes, and interprets research effectively on important problems in their discipline.	
a. Literature: Search, Selection, and Review. Reviews the literature in a manner that demonstrates comprehensive knowledge of previous and current research in the field of study.	
b. Defining the Problem. Identifies a viable question within the field of study and effectively documents the contribution of the research to the area of study.	
c. Methodology and Data Collection. Designs and implements appropriate research experiments to test the hypothesis or the solve problem.	
d. Data Analysis and Interpretation. Analyzes and interprets research data appropriately. Demonstrates sufficient knowledge of appropriate concepts, theories, and emerging methodologies in their area of research.	
e. Conclusions and Recommendations. Presents conclusions and recommendations that are accurate, clearly linked to data presented, and take into account all critical factors.	
3. Application. Communicates effectively to a diverse group of people using appropriate traditional and emerging technological media.	
4. Synthesis. Demonstrates potential for original contribution to their discipline.	

Comments:

PROGRAM-LEVEL COMPETENCY TARGETS = 4.0 FOR M.S. STUDENTS AND 5.0 FOR PH.D. STUDENTS**1. KNOWLEDGE OF FIELD.** Understands the breadth and depth of knowledge associated with their discipline.

KNOWLEDGE OF FIELD: Understands the breadth and depth of knowledge associated with their discipline.						
6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	N/A
Clearly understands most or all of the concepts associated with the discipline as well as the challenges and embedded issues.		Understands some of the key concepts associated with the discipline. May or may not describe embedded issues.		Does not understand the key concepts, challenges, or embedded issues associated with the discipline; or does so minimally.		Unable to rate based on this work
Demonstrates accurate and nuanced use of disciplinary language, definitions, and terms appropriate to the audience the work is intended for.		Use of technical language, definitions and terms is generally accurate and appropriate for the audience the work is intended for.		Often misuses technical terms and concepts, and/or relies on overly general layperson's language.		
Demonstrates appropriate breadth AND depth of knowledge associated with the discipline.		Demonstrates appropriate breadth of knowledge associated with the discipline but lacks depth (or visa versa).		Demonstrates limited breadth and depth of knowledge associated with the discipline.		
Comments:						

2. EVALUATION. Designs, conducts, analyzes and interprets research important to their discipline. 2a. Literature: Search, Selection, & Review.

Search, Selection, & Review						
6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	N/A
Uses appropriate, relevant, and high quality info sources to create a presentation that is current, well balanced and richly supported by the cited sources.		Uses a moderate number of respectable sources that, for the most part, cover the needed info. Some sources may be irrelevant or out of date, and/or key area(s) of the issue may not be addressed.		Minimal or no evidence of search, selection, or source evaluation skills.		Unable to rate based on this wo
Evaluates most or all sources for quality, perspectives, relevance, and currency.		Only minimally evaluates sources for quality, relevance and currency		No evaluation of info sources is present.		
Identifies gaps in the literature and/or relevant gaps in their own knowledge or skills. Good knowledge of previous and current research in their discipline.		Shows some signs of evaluating info gaps in the literature or in their own knowledge or skills. Gaps in knowledge of previous and current research in their discipline.		Does not identify the info gaps or what they still need to know. Limited knowledge of previous or current research in their discipline.		
Comments:						

2b. Defining the Problem.

2.1. Defining the Problem						
6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	N/A
Identifies a focused, unique, original problem that is challenging and well defined.		Identifies a somewhat focused problem that is interesting but not particularly challenging or is simplistic. OR the problem is unsatisfactorily defined and characterized, with important omissions of key considerations.		The problem, if identified, is confused or simplistic.		Unable to rate based on this work
Potential for significant contribution of the research to their discipline		Limited potential for contribution of the research to their discipline or with more focus could prove to contribute significantly.		Contribution of the research to their discipline is not clear.		
Comments:						

2c. Methodology & Data Presentation.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	N/A
<p>Approach and methodology are complete, appropriate and correct for the problem. Has knowledge of emerging methodologies in their discipline.</p> <p>Data collected and presented demonstrates a clear understanding of the info and its relationship with the problem.</p> <p>Data presented appropriately - graphs and/or tables are complete, accurate, relevant, and contain appropriate headings, descriptors, significant figures, etc. Use of statistics is appropriate and presented clearly and completely. Interpretations drawn from statistical presentations are accurate.</p>		<p>Approach and methodology are related to the problem but do not fully address the problems due to flaws or inappropriate approach. Has limited knowledge of emerging methodologies in their discipline.</p> <p>Data collected and presented adequately. Relationship of the data to the problem are not entirely clear.</p> <p>Data presented are generally appropriately - graphs and/or tables contain relevant headings, but some details may be missing or unclear, such as units, significant figures, etc. Statistical information is generally understood and interpreted correctly.</p>		<p>Poor/inappropriate methodology approaches demonstrated, or approach and methodology are unrelated to the problem. Has no knowledge of emerging methodologies in their discipline.</p> <p>Limited data collected or data/approach demonstrates little attention to or understanding of the problem</p> <p>Data presentation are incomplete, poorly labeled, confusing, or missing all together.</p>		Unable to rate based on this work
Comments:						

2d. Data Analysis and Interpretation.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	N/A
<p>Use and interpretation of info are accurate and thorough, including interpretation of data given in graphs and tables, as well as the overall results and conclusions given by each source.</p> <p>Logical and highly insightful inferences from the info presented. Excellent job in integrating literature and data in appropriate and creative ways. Analysis demonstrates firm understanding of data. Alternate interpretations of, or inferences from, data are discussed appropriately and in detail.</p>		<p>Accurately uses and correctly interprets most of the info obtained from sources, including data given in graphs and tables, as well as the overall results and conclusions given by each source. One or more minor points may be overlooked or misinterpreted.</p> <p>Generally makes logical inferences from the info presented, with only few or minor mistakes. Demonstrates a basic understanding of the data and some ability to connect literature and data to analyze evidence, but analysis is confusing in some spots or contains inaccuracies. Analysis generally reflects evidence reviewed, collected and presented. May provide brief, appropriate mention of alternative interpretations.</p>		<p>Little or no interpretation of data, instead is simply a restatement of facts and ideas found elsewhere. Misunderstands or misrepresents info given in their sources.</p> <p>Limited or no logical inferences from the info presented. Does not appear to understand the info.</p>		Unable to rate based on this work
Comments:						

2e. Conclusions and Recommendations.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	N/A
---------------	---------------	---------------	----------------	--------------	-------------	-----

<p>Conclusions are accurate, appropriate, and clearly linked to problem and data presented.</p> <p>Conclusions and recommendations are balanced and qualified to account for uncertainties in the data or unpredictability of the system, and student's own biases.</p>	<p>Conclusions are reasonable but may not take into account all critical factors.</p> <p>In a limited way, students consider uncertainties or other limitations of the conclusions or evidence.</p>	<p>Conclusions are inaccurate and/or unreasonable, do not reflect the research and data presented, or are merely a simplistic summary not tied to the original problem.</p> <p>Conclusions and recommendations are biased and do not reflect the research and data, suggesting views were established before or in spite of the evidence.</p>	Unable to rate based on this work
Comments:			

3. APPLICATION. Communicates effectively to a diverse group of people using appropriate traditional and emerging technological media.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	N/A
<p>Captures and communicates the intended idea(s) accurately and clearly.</p> <p>Main points connect with the audience and are smoothly tied together.</p> <p>Compellingly conveys why the issue matters.</p> <p>Visuals (graphs, tables, diagrams, etc) are clear, concise, and relevant.</p> <p>Polished, error-free, and engaging. Professional.</p>		<p>Captures and communicates the intended idea(s) accurately but parts are not clear.</p> <p>Generally easy to identify main points and transitions are usually smooth.</p> <p>Background and context sufficient to indicate the issue is important.</p> <p>Visuals (graphs, tables, diagrams, etc) generally support the written component, but some may be overly complex, simplistic, or redundant.</p> <p>Contains errors, but errors do not distract from or misrepresent content and ideas.</p>		<p>Inadequately/inaccurately captures and communicates the intended idea(s) due to gaps and digressions. Little attention is paid to accuracy.</p> <p>Difficult to identify main points. Transitions may be rough.</p> <p>Limited background info and context so not at all clear why issue matters.</p> <p>Not clear how the visuals (graphs, tables, diagrams, etc) add credibility to the topic.</p> <p>Multiple errors in grammar, syntax, punctuation, etc., that obscure and/or misrepresents the content.</p>		Unable to rate based on this wo
Comments:						

4. SYNTHESIS. Demonstrates potential for original contribution to their discipline.

6 - Mastering							5 - Effective							4 - Competent							3 - Developing							2 - Emerging							1 - Minimal							N/A																																																																					
Research demonstrates excellent potential for original contribution to their discipline. Research is unique, well organized, complete, and statistically sound.																												Research demonstrates some potential for original contribution to their discipline. Research is unique but contains flaws in interpretation, organization, completeness and/or statistics.																												Research contains serious flaws that would make it unpublishable. Not unique.																												Unable to rate based on this work																											
Research prepares student for further productive research beyond graduate school.																												Research prepares student for limited research beyond graduate school																												Limited or no potential for student to do further research in this area.																																																							
Comments:																																																																																																															

Position Information

Employee Name		Satisfactory Academic Progress <input type="checkbox"/> Meets Expectations <input type="checkbox"/> Does NOT Meet Expectations	
Department		Major Professor, name: Signature:	
Evaluation Period		Date of Evaluation	
Supervisor			
Position Number C6	Appt % (FTE)	Appt Basis (term; 9 mo.; or 12 mo.)	Job Location

Position Duties

Primary Duties (taken from the position description)

Overall Evaluation (required)

The supervisor provides comments substantiating the **overall** performance rating. If there are areas in which the Graduate Assistant is expected to improve his/her performance, they should be noted in this section.

☐ Exceeds Expectations (5-6) ☐ Meets Expectations (4-3) ☐ Does NOT Meet Expectations (2-1)

Comments: (example text in italics, replace as necessary)

- A. *Overall [Graduate Assistant] exceeds the general responsibilities outlined in the position description.*
- B. *[Graduate Assistant] meets the general responsibilities outlined in the position description, but [Supervisor] would like to see more self-started initiative related to finding ways to improve the [research tasks/teaching assignments].*
- C. *[Graduate Assistant]'s attitude towards responsibilities laid out in the position description, is not congruent with the expectations of a graduate level appointment.*
- D. *[Supervisor] is committed to exploring mechanisms for creating a valuable and manageable experience for [Graduate Assistant] and the department.*

THE FOLLOWING SECTIONS ARE OPTIONAL, BUT CAN BE USED TO OFFER FURTHER DETAIL TO

THE GRADUATE EMPLOYEE**Evaluation of Major Job Responsibilities (position description duties) (optional)**

☐ Exceeds Expectations ☐ Meets Expectations ☐ Does NOT Meet Expectations

Comments: (example text in italics, replace as necessary)

- A. *[Graduate Assistant] meets many of the responsibilities outlined in the PD. [Graduate Assistant] assists in supporting student learning, offers regular office hours and responds to inquiries regarding labs*
- B. *Is making good progress on assigned laboratory work, takes initiative, and keeps a clean and safe working environment.*
- C. *With respect to K-12 outreach efforts, [Graduate Assistant] is not currently doing much of this. This is considered a professional development opportunity, and [Supervisor]'s instructions are to prioritize other activities over this duty.*

General Expectations (optional)

- a. **JOB KNOWLEDGE/TECHNICAL COMPETENCE.** Possesses and demonstrates technical, general or other specific knowledge and skills required to perform job duties and accomplish stated objectives.

☐ Exceeds Expectations ☐ Meets Expectations ☐ Does NOT Meet Expectations

Comments: (example text in italics, replace as necessary)

- A. *Generally, [Graduate Assistant] displays knowledge necessary to deliver the basic duties of a teaching assistant.*
- B. *If [Graduate Assistant] is unaware of how to complete a technical task, he appropriately seeks out [Supervisor] for help.*
- b. **QUALITY.** Demonstrates a commitment to providing quality work. Work performed is of high standard. Is not satisfied with producing work that is “just good enough.”

☐ Exceeds Expectations ☐ Meets Expectations ☐ Does NOT Meet Expectations

Comments: (example text in italics, replace as necessary)

- A. *Research tasks are performed at the highest standard, with great attention to detail, and with care in execution*
- B. *Office hours are conducted with great thought in terms of pedagogy and in a manner that provides for a welcoming environment to students that makes the encounter conducive to learning*
- C. *[Graduate Assistant] does not hold office hours at scheduled times, and does not respond to student inquiries in a timely manner*

- c. **WORKING RELATIONSHIPS AND COMMUNICATION.** Establishes and maintains cooperative working relationships with co-workers and supervisor. Responds actively and effectively to needs of undergraduate students and colleagues. Respects abilities, decisions and motives of co-workers, internal stakeholders and partners. Speaks and acts ethically, fairly and consistently. Practices timely concise and relevant communication.

☐ Exceeds Expectations ☐ Meets Expectations ☐ Does NOT Meet Expectations

Comments: (example text in italics, replace as necessary)

- A. *[Graduate Assistant] appears to have a good working relationship with the undergraduate students that he is serving. This is an important quality of the successful graduate student working in this role.*

- d. **INTEREST AND INITIATIVE.** Displays enthusiasm, dedication and interest in duties and responsibilities. Is a self-starter and proactive in approach to job. Demonstrates willingness to work beyond the usual or ordinary requirements of job when needed. Shows initiative and flexibility in meeting challenges. Capable of acting independently when circumstances warrant.

☐ Exceeds Expectations ☐ Meets Expectations ☐ Does NOT Meet Expectations

Comments: (example text in italics, replace as necessary)

- A. *[Graduate Assistant] takes the initiative to ensure that program activities that she is assigned are implemented and performs her duties with acceptable quality.*
- B. *Draft journal manuscript was produced and submitted by agreed upon deadline and the quality of the manuscript was satisfactory (with respect to content, formatting, spell-checking etc.)*

- e. **JUDGEMENT.** Demonstrates ability to analyze available data or circumstances, consider alternatives, and make well-reasoned, timely decisions that favorably affect performance and organizational goals. Acts reliably and responsibly, keeping supervisor informed and aware of potential issues or areas that need attention.

☐ Exceeds Expectations ☐ Meets Expectations ☐ Does NOT Meet Expectations

Comments: (*example text in italics, replace as necessary*)

- A. *[Graduate Assistant] needs to improve ability to apply sound judgment and follow protocols for how data should be handled and shared (in accordance with university IRB/IACUC and RCR policies)*
- B. *[Graduate Assistant] performs work in accordance with health and safety protocols, and helps keep various laboratory H&S records up to date*
- C. *[Graduate Assistant]'s lack of ability to manage time and delegate work to the undergraduate worker is partially responsible for difficulty in managing the assigned work.*

It should be noted that [Supervisor] has attempted to coach [Graduate Assistant] on multiple occasions on delegating more of his work to the undergraduate worker, whom [Graduate Assistant] oversees.

Goals for the Next Evaluation Period (If Applicable - Optional)

Goals: (*example text in italics, replace as necessary*)

- A. *[Graduate Assistant] and [Supervisor] will create a list of goals and primary tasks (attached) to facilitate better evaluation of accomplishments for the next evaluation period,*
- B. *[Graduate Assistant] will log his time weekly to determine how he is meeting the .49 FTE commitment.*

Additional goals/areas of improvement/excellence discussed are (can include written input provided by students, clients or others who have direct knowledge of the employee's performance (Article 15, Section 2):

Signatures

Employee signature confirms ***receipt*** of the evaluation. Graduate Assistants may submit a written rebuttal for inclusion into the personnel record within 30 days of receipt of the evaluation (Art. 15, Sec.4).

Employee Signature

Date

Supervisor Signature

Date

TIMETABLE FOR PHD STUDENTS(See the Graduate School's *Graduate Student Guide to Success* for additional information)

Year	Activities	Date Completed
1	Choose major advisor(s)	_____
	Choose committee members including Graduate Council Representative and declare minor (if desired)	_____
	Send Program Statement to Graduate Faculty by end of first term	_____
	File official OSU Program of Study form with Graduate School by the end of first year	_____
	Give first of two seminars (departmental or professional)	_____
2	Take departmental written preliminary exams	_____
	Take oral preliminary examination (schedule with Graduate School)	_____
	Give second of two seminars (departmental or professional)	_____
3-5	Before scheduling the thesis defense, file the "Approval to Proceed with Final Defense of Thesis" form with Graduate School, which includes approval of thesis title	_____
	Two weeks prior to final exam, schedule examination with Graduate School and submit an examination copy of your thesis to Graduate School and your committee. You must provide your graduate committee a copy of your thesis at least two weeks before the thesis defense date.	_____
	Give thesis seminar and take final oral exam	_____
	Submit final thesis materials to Graduate School no later than six weeks after exam	_____
Before graduating, be sure to fulfill		
	Program requirements	_____
	Teaching requirements	_____
	Seminar requirements	_____
	Ethics training/certificate	_____
Schedule exit interview with department head		

Date _____
 Program Year _____

**Crop and Soil Science
MS Graduate Student Annual Review Form**

Name of Graduate Student _____
 Degree Program _____
 Program Start Date _____
 Expected Completion Date _____

MILESTONE	CIRCLE ONE	DATE
Coursework	Completed/Scheduled/Anticipated	—
Program Meeting	Completed/Scheduled/Anticipated	—
Official Program Approved and Filed	Completed/Scheduled/Anticipated	
Teaching	Completed/Scheduled/Anticipated	—
Non-Thesis Topic Seminar	Completed/Scheduled/Anticipated	—
Ethics training	Completed/Scheduled/Anticipated	—
Oral Exam and Thesis Defense	Completed/Scheduled/Anticipated	—
Thesis Submitted to Grad Committee	Completed/Scheduled/Anticipated	—

THESIS OR PROJECT

Progress made:

Goals for upcoming year:

Graduate Student's Endorsement:

I have completed an annual review with my major advisor and understand that I have the right to discuss this evaluation with the department head. Furthermore, I understand that I can attach any comments, explanations and rebuttals to this review.

Graduate Student's Signature

Date

Major Professor's Endorsement:

This certifies that I completed an annual review with this graduate student.

Major Professor's Signature

Date

Date _____
 Program Year _____

**Crop and Soil Science
PhD Graduate Student Annual Review Form**

Name of Graduate Student _____
 Degree Program _____
 Program Start Date _____
 Expected Completion Date _____

MILESTONE	CIRCLE ONE	DATE
Coursework	Completed/Scheduled/Anticipated	_____
Program Meeting	Completed/Scheduled/Anticipated	_____
Program filed with Graduate School	Completed/Scheduled/Anticipated	_____
Written Preliminary Exam	Completed/Scheduled/Anticipated	_____
Oral Preliminary Exam	Completed/Scheduled/Anticipated	_____
Teaching	Completed/Scheduled/Anticipated	_____
First Seminar	Completed/Scheduled/Anticipated	_____
Second Seminar	Completed/Scheduled/Anticipated	_____
Ethics Training	Completed/Scheduled/Anticipated	_____
Thesis Defense Seminar	Completed/Scheduled/Anticipated	_____
Thesis	Completed/Scheduled/Anticipated	_____

THESIS OR PROJECT

Progress made:

Goals for upcoming year:

Graduate Student's Endorsement:

I have completed an annual review with my major advisor and understand that I have the right to discuss this evaluation with the department head. Furthermore, I understand that I can attach any comments, explanations and rebuttals to this review.

 Graduate Student's Signature

_____ Date

Major Professor's Endorsement:

This certifies that I completed an annual review with this graduate student.

 Major Professor's Signature

 Date

CSS PhD Written Exam / Research Format Proposal Checklist and Approval Form

Name of Student: _____

Major Professor: _____

Committee Member: _____

A written research proposal is part of the PhD preliminary examination in the Department of Crop and Soil Science. The proposal format should conform to the established guidelines.

The proposal must be approved by the PhD student's committee prior to the oral examination (one dissenting vote is allowed). To evaluate the written proposal in a timely manner and to allow time for the student to respond to comments, the following schedule should be followed:

Date

- a. Thesis topic approved by committee
- b. Student submits proposal to his/her committee at least six weeks before the scheduled date of the exam.
- c. Committee members vote to approve the proposal, with any suggested requirements or revisions of the proposal (seven days after submission of the proposal). If the proposal is not approved by two or more members of the committee, the student has two weeks to submit a revised proposal.

Vote for the original proposal:

_____ Pass _____ No Pass

Vote for the revised proposal:

_____ Pass _____ No Pass

Committee Member's Signature

The committee member should sign the Approval Form when giving a **final** approval of the proposal. The student should return this completed form to his/her Major Professor prior to scheduling the oral examination.

Comments (attached additional pages if necessary):