



College of Agriculture
and Natural Resources
Plant Sciences

Graduate Student Handbook

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Persons seeking admission, employment, or access to programs of the University of Wyoming shall be considered without regard to race, color, religion, sex, national origin, disability, age, veteran status, sexual orientation, or political belief.

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Introduction

The Department of Plant Sciences offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Plant Sciences. Much of the research and teaching in our department focuses on development and practical application of the plant sciences in order to meet the food, feed, fiber, and natural resource needs of a growing population. Our goal in graduate education is to provide students with an applied education that emphasizes the functional relationships between the broad array of scientific disciplines required to produce plants in a sustainable manner. We define sustainable agriculture as utilizing production practices that meet the needs of today, while not compromising the ability of future generations to meet their own needs. Development and application of sustainable production practices requires a breadth of knowledge about how these practices influence other aspects of the agroecosystem. A graduate degree in Plant Sciences from the University of Wyoming will equip students with the skills and knowledge necessary to obtain fulfilling positions in academia, industry, or the public sector.

Faculty in the Department of Plant Sciences have diverse expertise in the areas of pest management (weed science & plant pathology), horticulture (plant propagation, turf management, & landscaping), and crop development and production (plant breeding, biofuels, forage science, variety development, water management, and environmental monitoring). Most of our faculty are based on the main Laramie campus, but we have a significant presence at the Research and Extension Centers near Lingle, Powell, and Sheridan. The Plant Sciences faculty prides itself on our approach to graduate education and the individualization of graduate programs. We have high expectations of ourselves as well as our students. We view graduate education as a collaboration between our faculty and our graduate students. We feel this approach is critical to developing students into scientists.

This handbook is intended to assemble pertinent information into one easily accessible document. For more detailed and potentially up-to-date information, please check the Graduate Education page on the University of Wyoming website (<https://www.uwyo.edu/uwgrad/>) and the Graduate Student Regulations and Policies therein. This handbook is not intended to be a replacement, but a supplement to information provided on that page.

In addition, the University offers a variety of resources for students and researchers to maximize success in their fields. Learn more about these campus resources at <https://www.uwyo.edu/uwgrad/prospective/resources.html>.

Responsibilities and Expectations

Graduate Student Responsibilities and Expectations

Graduate students are considered members of the Department of Plant Sciences, and as such they are expected to contribute to the mission of the department in the areas of teaching, research, and extension. Teaching responsibilities for Graduate Assistants will be assigned by the Department Head in consultation with the Major Advisor and the student. In general, one semester of teaching will be required during each academic year of the graduate program; however, more or less may be required depending on the needs of the Department. Some funded graduate assistants may be required to teach every semester. (See Graduate Assistantships under the Financial Assistance section.)

In addition to teaching, the Department of Plant Sciences is heavily involved in research and extension activities. All graduate students in the department will be conducting research that will form the basis of their thesis or dissertation. Research conducted in our department should be made available to our stakeholders through many communication channels. Therefore, it is expected that graduate students present the results of their research at extension field days or other venues when appropriate. Writing research results for distribution in the form of extension publication is also a common expectation of graduate students in our department. These writing and presentation experiences will help develop skills that will be valuable for the student regardless of their chosen career path.

Ultimately, it is the student's responsibility to understand and complete all requirements for graduation, including submission of forms, thesis or dissertation submission, etc., although the Major Advisor should provide guidance in this area.

Major Advisor Responsibilities and Expectations

The Major Advisor should be your primary contact with the Department during the admission process. Once accepted, your thesis or dissertation project will be developed in consultation with your Major Advisor, and it will most likely be within your Major Advisor's area of expertise. The Major Advisor will serve as a resource when designing your Program of Study (the coursework that will be required for your degree). The Major Advisor also serves as the Chair for your Graduate Committee, which will ultimately determine whether you have successfully completed all requirements for the graduate degree. Your advisor will be the primary editor of your thesis or dissertation, and will help you in collection, analysis, and presentation of results. Your relationship with your Major Advisor is one of the most important relationships you will build while in graduate school (and beyond), and therefore, your choice of Major Advisor is an important one. Your Major Advisor is responsible for providing support in all aspects of your education.

Graduate Committee Responsibilities and Expectations

The role of the Graduate Committee is to help design your graduate experience, especially in the areas of research and coursework. The Graduate Committee should provide input to help design a novel and meaningful project. They should help ensure that the expectations of you as a student are reasonable and that the project can be completed within a time frame that is agreed upon by you and the committee. They will also provide input into your coursework, with the goal of designing a Program of Study that is well integrated with your research program, and one that will provide the expertise necessary to meet the demands of your chosen career path. The Graduate Committee will oversee all graduate examinations, including the final examination that is required for degree completion.

We strongly advise that your Graduate Committee be nominated and appointed by the end of your first semester for M.S. students or the end of the second semester for Ph.D. students. The student should consult with their Major Advisor early in their first semester to discuss potential committee members. The Committee Assignment form (https://www.uwyo.edu/registrar/students/graduate_student_forms.html) should be signed by committee members and submitted to the Department Head for approval, then to the College Associate Dean of Academic and Student Programs for approval, and then to the Academic Affairs/Associate Vice Provost of Graduate Education for approval. Once approved, the form will then be routed to the Office of the Registrar by Academic Affairs (or the student may request to pick the form up and deliver it directly to the Registrar). Note: The Registrar will not accept a Program of Study form until the Committee Assignment Form has been approved in Academic Affairs and is recorded with the Registrar.

The Graduate Committee must have at least three (3) M.S. or five (5) Ph.D. members, and should be composed of the Major Advisor (who serves as Chair of the committee), and at least one faculty member that is from a department other than Plant Sciences. For Ph.D. students, at least three of the five committee members should be from within the Department of Plant Sciences. Occasionally, and as appropriate, Graduate Committees may include a qualified scientist with special expertise from outside the University of Wyoming. Such a committee member does not replace having an outside-the-department UW faculty member on a Graduate Committee.

ALWAYS MAKE A COPY OF DOCUMENTS FOR YOURSELF AND THE DEPARTMENT OFFICE FOR FILING.

Admission into the Plant Sciences Graduate Program

General Criteria and Minimum Requirements

The Department of Plant Sciences is always seeking highly qualified applicants for graduate admission. We place a high level of emphasis on an applicant's ability to communicate effectively (orally, in writing, and digitally), independent problem-solving skills, and the ability to work well as part of a team. In addition to these desired skills, full admission into the Department of Plant Sciences for graduate study requires:

- Undergraduate cumulative *GPA of 3.0*
- For non-native English speakers:
 - *TOEFL score of 540* (76 on the iBT, internet-Based Test) OR
 - *IELTS score of 6.5*

Application and Admission Process

Any student who is interested in obtaining a graduate degree from the Department of Plant Sciences should begin by contacting a faculty member within our department to discuss research interests and funding opportunities. Please apply at the University of Wyoming Admissions website (<https://www.uwyo.edu/admissions/>). You will be required to submit the following:

- A statement of purpose that describes your professional objectives and scientific interests
- A current Curriculum Vitae
- Current academic transcripts
- TOEFL scores (if English is not your primary language)
- Three letters of recommendation (to be submitted directly by references through the online application)

Our registration deadline for fall semester admission is February 15, although we will accept applications any time during the year (including for spring semester admission as well). More information on Graduate Education and the Admissions process can be located at the UW Graduate Education website: <https://www.uwyo.edu/uwgrad/>.

New graduate students are asked to attend a half-day orientation session (New Graduate Student Orientation). Graduate students receiving graduate assistantships are required to attend a Graduate Assistant Teaching and Learning Symposium held prior to the start of the fall semester. The Symposium is intended for graduate assistants with first-time teaching responsibilities. Visit the Graduate Education page at <http://www.uwyo.edu/uwgrad/enrolled-students/symposium.html> to learn more about these sessions.

Provisional or Conditional Acceptance

In some cases, the Department may approve provisional or conditional admission into the graduate program. For example, a promising student whose previous education is in a diverse discipline may be accepted conditionally, provided they successfully complete remedial coursework by a certain date. In cases of provisional or conditional acceptance, the requirements (such as additional coursework, independent projects, etc.) for attaining full acceptance will be described in the acceptance letter. At minimum, conditionally admitted graduate students must maintain a 3.0 GPA through their first semester. Failure to do so will result in revocation of admission.

Change of Graduate Degree Status

Students accepted into the graduate program may, at some point, desire a change of status from the Master's level to Doctoral level, or perhaps (in rare cases) from the Doctoral to the Master's level. This may occur for several reasons, the most desirable being that the student has successfully completed all requirements for the M.S. degree and wishes to continue study toward a Ph.D. However, a change may be requested whether or not the student plans to complete a Master's degree before continuing for a Ph.D. Another possible scenario might be that the graduate research project has grown beyond M.S. level work to something that warrants a Ph.D., and the student has demonstrated the ability to obtain the Doctorate. Regardless of the reason, the following procedure should be followed if a change in degree status is desired:

1. Submit a ***Program Change*** form to the Department Head's office. This is a multi-purpose form that has spaces where the student indicates a change *within the same program* from M.S. to Ph.D. or Ph.D. to M.S. The form must be signed by the Department Head(s) affected and filed with the Office of the Registrar. The Program Change form is available online at: https://www.uwyo.edu/registrar/students/graduate_student_forms.html.
2. Update all application materials for review by the faculty. This should include an unofficial transcript (available via WyoRecords), a letter of support from the major professor, an updated CV, and an updated letter describing any new goals and plans for the new degree. These updates should be submitted to the Department Head's office by October 15 if the desired change is to take place for the spring semester, and no later than March 15 if the requested change is to take place for the fall semester. The Plant Sciences faculty will review the application materials at a faculty meeting scheduled for review of graduate applicants.
3. After reviewing the updated application materials, the faculty will vote to either allow or deny the change in status, and this vote will be advisory to the Head. After considering the faculty vote, the Head will act on the request and forward it to the Dean's office for action. Under most circumstances, it is anticipated that the Head's action will concur with the faculty vote, consistent with the academic principle of democratic self-governance, for both changes of status and admission of new applicants to the graduate program.

Financial Assistance

Graduate Assistantships

Teaching assistantships or research assistantships are available as funding allows in the Department of Plant Sciences. Graduate assistantships may be awarded exclusively for teaching or for research, but in most cases a combination of teaching and research will be expected from all students receiving assistantships. With few exceptions, financial support from an assistantship will be limited to two (2) years for the M.S. degree, and three (3) years for the Ph.D. degree. Except in rare circumstances, we require an M.S. degree prior to acceptance into the Ph.D. program. However, if you were accepted to pursue a Ph.D. after first completing only a Bachelor's degree, you may be allowed up to five (5) years of funding. Additional funding may sometimes be provided if degree requirements are not yet met after these time limits; however, additional funding in most cases will be subject to availability of grant funds or other external funding sources. Please discuss these options with your advisor if you think these time limitations will be an issue. All funding is subject to adequate progress toward your degree. Graduate Assistants must maintain a cumulative overall minimum GPA and a cumulative degree program GPA of 3.0. Please see the section on annual progress reviews for more information.

Scholarships and Fellowships

Several scholarships and fellowships are available to graduate students in the Department of Plant Sciences. Most of these financial awards are above and beyond the graduate assistantship; that is, having a GA does not preclude you from applying for or receiving these awards. Therefore, all Plant Sciences graduate students are encouraged to apply for these awards, regardless of whether they are currently on a graduate assistantship. More information on Brand of Excellence scholarships and application materials can be found at: <https://www.uwyo.edu/agprograms/scholarships/>.

For Plant Sciences Graduate Students Only:

Bohnenblust-Kolp Student Research Experience Scholarship – This scholarship honors two plant geneticists (Ken Bohnenblust and Bernie Kolp) from the Department of Plant Sciences. Students conducting research activities in the areas of crop science, horticulture, plant pathology, and weed science are eligible for this award. *Proposals must be submitted by your faculty advisor.*

George H. Bridgmon Fund in Plant Science – This scholarship is awarded to a student in plant pathology each year in honor of Professor George H. Bridgmon. Students conducting applied research in plant pathology (or agroecology if no plant pathology students apply) are eligible for this award. *Proposals must be submitted by your faculty advisor.*

Edward H. "Ted" and Susan King Lloyd Graduate Research Award – The Lloyd Research Award may be used to fund all aspects of graduate student research, including travel. Funded research should be relevant to agriculture and have plausible business potential.

Student financial need may be considered. *Proposals must be submitted by your faculty advisor.*

For All College of Agriculture and Natural Resources Graduate Students: The scholarship application process for College of Agriculture and Natural Resources graduate students will not be an online application but will instead require applicants to submit several documents to the college's Scholarship Coordinator in the Office of Academic and Student Programs early in the spring semester (see attached email for 2020-21).

Jim and Marian Berger Graduate Scholarship – This scholarship was created to help students interested in pursuing an advanced degree in production agriculture as it relates to natural resource management, utilization of open spaces, and ranch habitat management. Student must have an agriculture-related undergraduate degree and be dedicated to natural resources. Primary consideration is the recipient's desire to integrate natural resources into their agricultural practices. Preference is given to WY residents.

Eldon and Josephine Johnston Family Graduate Fellowship – This fellowship was established by Josephine Johnston in memory of her husband and is intended to support graduate students with an inclination toward production agriculture, water resources, natural resource management, and animal health.

Mary Mead Graduate Fellowship for Women in Agriculture – awarded to a female graduate student in the College.

National Western Stock Show Graduate Student Scholarship – This scholarship is awarded to a full-time graduate student enrolled in a minimum of 9 credit hours in the College of Agriculture and Natural Resources, majoring in a traditional agriculture production area such as animal and veterinary sciences, plant sciences, range and watershed management, agricultural engineering, or agricultural and applied economics. Must be a U.S. citizen. Priority given to former National Western Stock Show undergraduate recipients.

Robert L. Lang Graduate Fellowship – This fellowship is offered by the Wyoming Agricultural Experiment Station and is intended to support graduate students working in plant sciences or range resource management. The fellowship provides \$1,200-\$1,500 during the summer, and is to be used to support summer salary, travel, or supplies. Graduate students should be doing the majority of their graduate work at the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) to qualify for this fellowship. To apply, a one-page proposal should be submitted to the Ag Experiment Station by the graduate student's major professor. More details on the fellowship are emailed to faculty during the spring semester. Proposals are typically due in the spring of each year.

UNIVERSITY OF WYOMING

College of Agriculture and Natural Resources

Sarah Kauer, Scholarship Coordinator

Academic & Student Programs | Dept. 3354 • 1000 E. University Ave. • Laramie, WY 82071-3354

Phone (307) 766-4135 • fax (307) 766-4030 • e-mail: ag-college@uwyo.edu • www.uwyo.edu/agpro-grams

March 4, 2020

The College of Agriculture and Natural Resources has four Brand of Excellence graduate scholarships available for the 2020-2021 academic year with **very specific criteria you must meet to be eligible.** If you determine that the research you are doing meets the criteria of any one of these scholarships (*descriptions included below*) submit all required documents in one pdf file using your last name as the file name. Submit by email to skauer@uwyo.edu. The deadline to apply is **5:00 pm on Friday, April 3, 2020**. Please include the following documents to apply:

- Paragraph about how your research meets the criteria of one or all of the scholarships listed below, specifically name which scholarship(s).
- Research program description- two page, 12 font, double spaced, 1" margins with a lay-man's description of your research and its impact.
- Personal statement about career goals (300 words)
- Resume (maximum two pages)
- Provide the names and contact information of two University of Wyoming references who can be contacted during March/April (ex: major advisor, department head, faculty member)

Jim and Marian Berger Graduate Scholarship

Must have an agriculture related undergraduate degree, preferences to WY residents, must be dedicated to natural resources. Primary consideration is the recipient's desire to integrate natural resources into their agricultural practices.

Johnston Family Graduate Scholarship

Production agriculture, water resources, natural resource management, animal health.

Mary Mead Graduate Scholarship for Women in Agriculture

Female graduate student in the College of Agriculture and Natural Resources.

National Western Stock Show Graduate Student Scholarship

Traditional agriculture focus, US citizen, priority to former National Western Stock Show undergraduate recipients.

Please contact me if you have additional questions. Thanks!

Sarah Kauer, Scholarship Coordinator

Graduate Program in Plant Sciences

The Program of Study

Following formation of the committee, each student must submit a Program of Study to the Office of the Registrar for approval. The Program of Study form is available online at https://www.uwyo.edu/registrar/students/graduate_student_forms.html. A minimum of 30 hours are required for the M.S. degree, and a minimum of 72 hours are required for the Ph.D. For the M.S. degree, at least 26 hours must be in formal coursework beyond the bachelor's degree numbered 4000 or above, and a minimum of 4 hours must be thesis research hours (PLNT 5960). For the Ph.D. degree, at least 60 hours must be in formal coursework beyond the bachelor's degree numbered 4000 or above, and a minimum of 12 hours must be dissertation research hours (PLNT 5980). A maximum of 9 credit hours may be transferred from other institutions for the M.S., and up to 48 hours may be transferred for the Ph.D.

The completed Program of Study form should be submitted to the Office of the Registrar. Degree Analysts will transcribe the program into a degree evaluation, which constitutes an agreement between the student, the student's committee, and the university wherein the minimum coursework requirements for that student's degree are listed. The program should be filed no later than the end of the student's second semester (or second Summer Session if enrolling only in summers). No master's student will be a candidate for a degree until his/her program is approved by the Department Head and the College Associate Dean of Academic and Student Programs. Changes to the approved program must be petitioned on the Office of the Registrar's Request for Change in Graduate Program form (https://www.uwyo.edu/registrar/students/graduate_student_forms.html).

ALWAYS MAKE A COPY OF DOCUMENTS FOR YOURSELF AND THE DEPARTMENT OFFICE FOR FILING.

Coursework Requirements

All graduate students in the Department of Plant Sciences are expected to register for Graduate Seminar (PLNT 5820) at least one semester per academic year, and are expected to attend Graduate Seminar meetings during both the fall and spring semesters. Graduate Seminar is held on Fridays from 1:10 to 2:00 p.m. Students enrolled in PLNT 5820 will be expected to present a 20 to 40 minute seminar as a part of the seminar series. The topic for that seminar will most likely be related to the student's research project, but other topics may be appropriate. Students should consult their Major Advisor and the Graduate Seminar instructor to decide on a topic and to help prepare for this seminar. At least two seminars are required for the M.S. degree, and three seminars are required for the Ph.D.

A minimum cumulative 3.0 grade point average (GPA) or better is required for all coursework. Hours for which a C was earned may be balanced by a corresponding number of hours for which an A was earned. No credit will be allowed toward an advanced degree for coursework in which a grade lower than C is earned.

Courses offered for graduate credit are distinguished by number as follows:

- 4000-4999 are primarily for junior and senior undergraduate students, but also may be used as part of the graduate Program of Study
- 5000-5999 are primarily for graduate students

Only courses at the 4000 or 5000 level may be counted for graduate credit. If a course is dual listed at the 4000/5000 level, the course must be taken at the 5000 level to receive graduate credit regardless of whether the course is in the student's primary program area. Only 12 credit hours of 4000-level coursework will be permitted on the graduate Program of Study.

Graduate students may enroll in courses numbered 1000-3999 to remove undergraduate deficiencies, but only those numbered 4000 and above will be computed into the graduate GPA and be allowed for graduate credit. Grades earned in coursework that are not included in the approved Program of Study for each candidate for an advanced degree will not be included in the accumulated GPA to determine eligibility for an advanced degree. These courses are, however, included in the GPA as listed on the academic record if the courses are numbered 4000 or above, and are used in determining probation or suspension. Courses numbered below 4000 are not added into the semester and cumulative totals, nor computed into the GPA.

All courses taken to fulfill the requirements for the degree program must be taken for letter grade (A-F) except those courses given for S/U only. The grade of S in thesis or dissertation research is a judgment that the student is adequately engaged in the required research objective. It in no way implies that the final thesis or the thesis defense will be judged of sufficient quality for the award of the appropriate degree.

Continuous Enrollment

Once admitted, all degree-seeking graduate students must maintain continuous enrollment. Unless a formal leave of absence is approved, all students must maintain at least one hour of continuous enrollment, including in the semester or session they expect to receive the degree. Students should maintain enrollment for two of the three academic semesters. Readmission will be required if the student has not enrolled in classes within the previous 12 months. Readmitted students should contact their department to learn more about their status. The department will contact the Office of the Registrar to initiate reactivation. Students who have been inactive for a long span of time should also investigate the status of their committees, programs of study, and time to degree status. International students' enrollment status is monitored by the office of International Students and Scholars and the office should be contacted for more information. **Only students not supported on a Graduate Assistantship are eligible to enroll in Continuous Registration.**

Time Allowance and Limitations

Master's students have six (6) calendar years to complete their degrees from the beginning of the first course taken and listed on the program of study, including any

transfer courses. Doctoral candidates have four (4) calendar years after the successful completion of their preliminary examination to complete their degree, and they must complete their degree within eight (8) years of the first course taken and listed on their program of study, including any transfer courses.

Academic Dishonesty

Academic dishonesty and scholarly misconduct will not be tolerated. Academic dishonesty is an act attempted or performed that misrepresents one's involvement in an academic task in any way or permits another student to misrepresent the latter's involvement in an academic task by assisting in the misrepresentation (UW Regulation 2-114).

If academic dishonesty has been established, the offending student shall receive a failing grade for the course in question. If two such acts have been recorded at different times or in different courses, the student shall be suspended from the university in accordance with UW Regulation 2-114. These actions shall not preclude the imposition of other sanctions by university officers including the loss of benefits from programs, scholarships, and other opportunities normally afforded students.

Performance Standards

Academic Requirements

Basic performance standards are described previously under the Coursework Requirements section. A minimum cumulative 3.0 grade point average (GPA) or better is required for all coursework required for an advanced degree. A student who fails to do satisfactory work may, upon the recommendation of the Department Head and with the approval of the College Dean, be placed on suspension for one semester. Students who fail to bring their graduate GPA to 3.0 or greater and remove themselves from probation after one semester will be suspended from the university. A suspended student can petition to be reinstated. The Dean will consult with the Department Head prior to a petition decision. A reinstated student is on probation and may be subject to other performance criteria as determined by the Dean in consultation with the Department Head.

Grades earned in coursework that are not included in the approved Program of Study for each candidate for an advanced degree will not be included in the accumulated GPA to determine eligibility for an advanced degree. These courses are, however, included in the GPA as listed on the academic record if the courses are numbered 4000 or above, and are used in determining probation/suspension. This coursework may also be taken into consideration during the annual progress review.

Annual Progress Reviews

Near the end of each spring semester, all graduate students in the Department of Plant Sciences will be required to fill out the **Annual Graduate Student Evaluation Form**, available from the Department Head's office. This form will require you to document your research accomplishments as well as summarize your teaching responsibilities from the

previous year. These forms will be reviewed by Plant Sciences faculty to ensure appropriate progress toward your degree is being made. The evaluation form must be reviewed and signed by your Major Advisor prior to submission to the Department Head's office. It is important that you communicate with your advisor to ensure this evaluation is done in a timely manner. Continued funding and enrollment in the Plant Sciences graduate program will be contingent on making adequate progress toward your degree. All students on a graduate assistantship must be in good academic standing and maintain a cumulative overall minimum GPA and a cumulative degree program GPA of 3.0. If there are any concerns from the faculty about your progress, you will be notified about measures that must be taken to address these concerns.

Termination from the Graduate Program

In general, there are three circumstances that will lead to termination of the student from the Plant Sciences Graduate Program: (1) The student successfully completes all requirements and obtains the graduate degree; (2) The student voluntarily terminates the program; or (3) The student is involuntarily terminated from the program. Obviously, the desired result for the Department and for the student is that the student completes their degree and moves on to a successful career or further education. However, many circumstances can lead to a student voluntarily leaving the program before the degree is completed, such as a change in goals or perhaps changes in the student's personal situation. In the case of voluntary termination by the student, all that is required is a letter to the Major Advisor, with copies delivered to the Department Head and Graduate Program Coordinator (currently Randa Jabbour).

Involuntary termination of a student from the graduate program is never a desired outcome, but circumstances sometimes require this course of action. Involuntary termination can occur as a result of inadequate progress toward the degree, or failure to meet minimum standards of the graduate program.

Grievance Reporting

If you as a student have a grievance to discuss, generally begin first with your major advisor, then the department head or grad program coordinator. If you are uncomfortable raising the issue with your advisor for whatever reason, you can begin the discussion with the department head or grad program coordinator. More information about university-level policies for grad student grievances, petitions and appeals can be found at https://www.uwyo.edu/uwgrad/files/docs/grad_student_grade_appeals_guidelines.pdf and lastly in the Petitions and Appeals portion of the Graduate Student Regulations and Policies (https://www.uwyo.edu/registrar/university_catalog/grad_students.html).

Thesis & Dissertation Guidelines

Content

Most theses and dissertations (but not all) will be divided into chapters, with the first chapter being an introduction and literature review, the final chapter consisting of a summary and overall conclusions, and all other chapters reporting the results of original research. Beyond this general guideline, specific details should be discussed with your Major Advisor and Graduate Committee. The content of your thesis or dissertation will be submitted for publication upon completion of your degree. The thesis or dissertation document must be submitted to the ProQuest Electronic Theses and Dissertations (ETD) online resource project (www.proquest.com) before the last day of classes.

Formatting

Thesis and Dissertation formatting guides (including an M.S. Word template) are available from the UW Graduate Student Forms and Guidelines web page (https://www.uwyo.edu/registrar/students/graduate_student_forms.html). Other than the specifications listed on the graduate student forms site, other details such as literature citation format, table and figure placement, etc. are discipline-specific and should be discussed with your Major Advisor prior to beginning to write the document. The Writing Center on campus is another resource.

The thesis or dissertation document and all appendices must be provided in an electronic format for upload into ProQuest following the format of standards established by the University Libraries, ProQuest Information and Learning. Please see [Preparing your Manuscript for Submission](#) in the formatting guide. The Report on Final Examination must be signed and submitted to the Registrar's Office prior to electronic submission.

Using Journal Articles in the Thesis/Dissertation

To encourage publication of thesis or dissertation results and to avoid requiring degree candidates to recreate thesis or dissertation chapters from peer-reviewed publications, the University of Wyoming permits the use of published papers as the foundation for theses and dissertations subject to the following conditions:

1. The publications must be refereed and must have been accepted for publication in scholarly journals of high quality. The source should be cited in the comprehensive introductory chapter (see point 5 below).
2. The publications must be written by the student. Editorial oversight by the mentor and committee is allowable and desirable; however, the mentor and committee have the responsibility to ensure that the student is the main author.
3. If there is more than one publication, the articles submitted must form a coherent whole, having a well-defined intellectual focus and advancing novel contributions along a clearly identified line of inquiry.

4. For multi-authored articles, the contribution of each author must be clearly stated in the preface or introduction to the thesis or dissertation.
5. A comprehensive, cohesive and coherent introduction and discussion must be incorporated as separate chapters. These chapters should summarize the current state of knowledge and the rationale for the research. They should clarify how each chapter is interconnected and provide a meaningful synthesis and discussion of chapter results as part of a coherent whole.
6. Appendices can be attached to include expanded methodology, unpublished data, tables, etc. Where appropriate, the appendices may be in electronic formats, provided the data are readily accessible to the international scholarly community.
7. An abstract is not sufficient to address these criteria.

Facilities & Resources

Research and Extension Centers

Laramie Research and Extension Center (LREC)

The Laramie Research and Extension Center (LREC) was established March of 2011, though the individual buildings have been around much longer, some since 1890. LREC consists of a Beef Unit, Swine Unit, Sheep unit, UW Research Greenhouse, McGuire Ranch, and Lab Animal facilities. LREC is spread out around Laramie and the surrounding areas.

James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC)

The Sustainable Agriculture Research and Extension Center (SAREC) is located in southeastern Wyoming along the North Platte River, near Lingle, in Goshen County. SAREC comprises 1,522 acres of dry land cropland, 349 acres of irrigated cropland, and 1,880 acres of rangeland. An additional 19 acres of irrigated cropland and 40 acres of dry land cropland are reserved for organic production. There is a 400-head multi-species research feed lot, a livestock weighing and sampling facility, and a wet chemistry laboratory for processing and analyzing forage samples. SAREC has a four-bedroom congregate residence available for use by faculty and students. Equipment includes a GPS transmission base station, automated weather stations, field sprinkler systems, tractors, sprayers, planters, cultivators, and harvesters for both small plot experiments and field scale operations.

Powell Research and Extension Center (PREC)

The Powell Research and Extension Center (PREC) is one mile north of Powell on Highway 295 at an elevation of 4,374 feet. The 30-year average annual precipitation is 6.67 inches. May and June are the only two months that exceed one inch of average precipitation. One hundred seventy-five of the 220 acres at the PREC are irrigated cropland. Research focuses include agronomic weed control, irrigation, cropping systems, high tunnel production, variety performance testing, transgenic variety response to herbicide treatments, and alternative crops. PREC participates in numerous regional research and education projects.

Sheridan Research and Extension Center (ShREC)

The Sheridan Research and Extension Center (ShREC) is in the U.S. Department of Agriculture (USDA) Plant Hardiness Zone 4 with an average growing season of 120 days and average annual precipitation of 15 inches. ShREC now has two active sites within Sheridan County. First the Wyarno station site, originally established in 1915, is located nearly seven miles east of Sheridan near Wyarno. This site consists of approximately 300 acres of dry land with an elevation of approx. 3,800 feet. The second and main office site is located just south of Sheridan. In 2013 the University of Wyoming purchased and renovated the Watt Regional Agriculture Center on the Sheridan College campus. It then

subleased the Adams Ranch located directly south of the new office location. The Adams Ranch consists of approx. 400 acres, to be utilized for research and educational activities. Since most of the Adams Ranch is under irrigation, the scope of ShREC has expanded even further. ShREC is able to provide dry land and irrigated land for studies to facilitate research and education on agriculture, forage management, horticulture, and viticulture (the science, study and production of grapes), along with various other possibilities.

M.S. Checklist

- Committee Assignment** form has been approved by the Department Head, the College Associate Dean of Academic and Student Programs, and the Academic Affairs/Associate Vice Provost of Graduate Education, and the form is on file with the Office of the Registrar. This should be done in consultation with your Major Advisor no later than the end of your first semester of your graduate program.
- Program of Study** form has been completed and approved by your Graduate Committee, Department Head, and the College Associate Dean of Academic and Student Programs. This form should also be on file with the Office of the Registrar. It is suggested that discussion and approval of the Program of Study be an agenda item at a committee meeting within the first year of your graduate program. The program should be filed no later than the end of your second semester (or second Summer Session if enrolling only in summers). You will be officially admitted to candidacy for the Master's degree upon successful completion of this form.
- The **Final Examination** may not be held until after the beginning of the semester in which coursework is completed. The Final Examination date, time, and place must be made public at least two weeks before the examination. This will typically be done by providing the information (along with a research abstract) to the Department Head's office, where it can be distributed. The format of the Final Examination is at the discretion of your Graduate Committee, and typically involves an oral examination, but may also involve a written examination. The thesis document must be submitted to your Graduate Committee at least three weeks prior to the final exam. The Final Examination typically begins with a public presentation of your research, followed by questions from interested faculty and your Graduate Committee. *The Final Examination must be held at least 10 days prior to the end of the semester in which you wish to graduate.* The **Report of Final Examination** form must be approved by your committee (majority vote), the Department Head, and the College Associate Dean of Academic and Student Programs. The form must then be filed with the Office of the Registrar.
- An **Anticipated Graduation Date** form must be filed with the Office of the Registrar. This form should be submitted by the middle of the semester in which you intend to graduate.

ALWAYS MAKE A COPY OF DOCUMENTS FOR YOURSELF AND THE DEPARTMENT OFFICE FOR FILING.

Ph.D. Checklist

- Committee Assignment** form has been approved by the Department Head, the College Associate Dean of Academic and Student Programs, and the Academic Affairs/Associate Vice Provost of Graduate Education, and the form is on file with the Office of the Registrar. This should be done in consultation with your Major Advisor no later than the end of your second semester of your graduate program.
- Program of Study** form has been completed and approved by your Graduate Committee, Department Head, and the College Associate Dean of Academic and Student Programs. This form should also be on file with the Office of the Registrar. It is suggested that discussion and approval of the Program of Study be an agenda item at a committee meeting within the first year of your graduate program. The program should be filed no later than the end of your second semester (or second Summer Session if enrolling only in summers).
- Preliminary Examination** should be taken after your Graduate Committee has approved your Program of Study. The Preliminary Exam must be held at least 15 weeks prior to the final examination, and after at least 30 hours of coursework have been completed. The format and conduct of this exam are the responsibility of your Graduate Committee, and thus you should consult with your Major Advisor on the requirements for successful completion. It is common in the Department of Plant Sciences for both a written examination and oral examination to be conducted. A **Report on Preliminary Examination for Admission to Candidacy** form must be completed and submitted to the Office of the Registrar upon completion of the Preliminary Examination, regardless of the outcome (pass or fail). You will be officially admitted to candidacy for the doctoral degree upon successful completion of the Preliminary Examination.
- The **Final Examination** may not be held until after the beginning of the semester in which coursework is completed. The Final Examination date, time, and place must be made public at least two weeks before the examination. This will typically be done by providing the information (along with a research abstract) to the Department Head's office, where it can be distributed. The format of the Final Examination is at the discretion of your Graduate Committee, and typically involves an oral examination, but may also involve a written examination. The dissertation document must be submitted to your Graduate Committee at least three weeks prior to the final exam. The Final Examination typically begins with a public presentation of your research, followed by questions from interested faculty and your Graduate Committee. *The Final Examination must be held at least 10 days prior to the end of the semester in which you wish to graduate.* The **Report of Final Examination** form must be approved by your committee (majority vote), the Department Head, and the College Associate Dean of Academic and Student Programs. The form must then be filed with the Office of the Registrar.
- An **Anticipated Graduation Date** form must be filed with the Office of the Registrar. This form should be submitted by the middle of the semester in which you intend to graduate.

ALWAYS MAKE A COPY OF DOCUMENTS FOR YOURSELF AND THE DEPARTMENT OFFICE FOR FILING.