



WASHINGTON STATE
UNIVERSITY

SCHOOL OF BIOLOGICAL SCIENCES

GRADUATE STUDENT HANDBOOK

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1 INTRODUCTION

The School of Biological Sciences (SBS) at Washington State University (WSU) offers graduate programs leading to the MS and PhD degrees. Our graduate programs are an important part of the overall research program in biological sciences at WSU. The state-of-the-art school and campus facilities and the collegial atmosphere of SBS and the university provide an ideal setting for the dedicated student to obtain interdisciplinary training in modern science, as well as mastery of their own specialty. The school provides students with opportunities and support to work closely with leaders of their areas in both laboratory and field settings. This handbook is designed to acquaint students with the **two** sets of regulations and procedures that will guide them to their graduate degrees:

- the university-wide policies of the **Graduate School** and
- the departmental policies of the **School of Biological Sciences**.

Failure to adhere to these regulations and to observe the degree requirements inevitably results in complications and could delay completion of the degree.

Faculty within SBS value graduate study as a period of academic growth and professional development. We facilitate and encourage students to obtain a broad working knowledge of their chosen areas. We wish you every success with your graduate program and in your future career.

2 NEW STUDENT INFORMATION

2.1 ORIENTATION

An orientation event for new students will be held on each campus during the week before their first semester begins. During this orientation, students will review school and university regulations, begin a course in teaching training, receive training in lab and course safety and become familiar with faculty research programs, the School's facilities, staff and expectations of their graduate program. During this time, the Associate Director will also meet each new student as needed to discuss degree requirements including any prerequisites or undergraduate deficiencies, transfer credits from previous MS degrees, graduate seminars, and special topics course requirements, and to answer any questions new students may have. ([See Requirements for Degrees.](#))

2.2 OFFICE AND DESKS

The School of Biological Sciences will provide desk and office space for all graduate students in the school, as long as space is available. Contact the Associate Director for your assignment. Please note that moving among offices can only be done with permission of the Associate Director.

2.3 KEYS

The Principle Assistant in the main SBS office will issue keys. To receive keys you will be required to sign an agreement that states that you will obey all WSU rules regarding keys. There is no charge for keys; however, you may be subject to costs of key replacement and rekeying if you lose or fail to return the keys when you leave. Please assume responsibility for locking all office, classroom, and laboratory doors.

2.4 BUILDING PASS

Graduate students are required to have a valid student identification card in their possession during hours when the buildings are closed and to present your card to security personnel upon request. In Pullman, student ID cards may be obtained from the [Cougar Card Center](#) in the bottom floor of the CUB or by calling 509-335-CARD (2273).

2.5 MAIL (PULLMAN-BASED STUDENTS)

Pullman students will be assigned a mailbox in Abelson 320. Mail sent from and received at the University should only be official correspondence. Personal mail should be delivered to private residences. Business correspondence can be left in the SBS main office for mailing. Letters should not be stamped and must have the return address of the school with the +4 zip code (4236).

2.6 TELEPHONES AND FAX

Telephones are available for local calls. Graduate students should work with their advisors in case of a need for work-related long-distance calls. Personal long-distance telephone calls are prohibited. For long-distance faxes, you will need a long-distance access code. Please see the Finance Manager for additional information.

2.7 INTERNET ACCESS AND COMPUTER USE

A WSU network account, including an email address, is opened for all graduate students upon admission. Roving IP addresses are also available through IT for connecting laptop computers to the internet. Official WSU correspondence should only be sent from, or to @wsu.edu email addresses.

Pullman-based students have access to facilities in the Science Learning Instructional Center (SLIC, Abelson 227). Computers in SLIC are situated in three laboratories and students are free to use these computers when the laboratories are not reserved for classes. In addition, laptop computers and projectors for

presentations; scanners; digital topographical maps for Idaho, Oregon, and Washington; and limited amounts of software are available through the School of Biological Sciences. A sign out sheet for computers and projectors is located in the main office (Abelson 301). For other equipment and software, students should check with faculty or staff concerning their availability.

2.8 PHOTOCOPYING (PULLMAN-BASED STUDENTS)

Copiers are available to Pullman-based SBS graduate students in Abelson 312 and Abelson 301. You will be assigned a copier code (usually the first 4 digits of your Social Security #) to be used for your educational endeavors. Copies will be charged (@ \$0.10/copy, currently) against your annual graduate allocation, which varies from year to year (see below). There is a separate copier code for copying related to your TA responsibilities. Please see the Finance Office for the appropriate code.

2.9 GRADUATE COORDINATOR

Your Graduate Coordinator is available for assistance with university forms, grant and scholarship applications, and general questions. All graduate paperwork must be routed through the Graduate Coordinator.

2.10 RESEARCH SUPPLIES (PULLMAN-BASED STUDENTS)

Pullman students usually receive an annual allocation from the School for research-related costs (books are not allowed). Check with the finance office on availability of funds and to facilitate purchases.

3 SCHOOL OF BIOLOGICAL SCIENCES GUIDELINES

3.1 STUDENT APPOINTMENTS

To ensure that all necessary paperwork has been completed, all graduate students should report to the SBS Main Office prior to August 16 (or January 1 for Spring semester appointments); responsibilities related to assistantships formally begin on this date. Students on teaching assistantships (TA) are assigned teaching responsibilities within the School of Biological Sciences in Pullman or Natural Sciences in Vancouver. Teaching assistantships are assigned based on a combination of the student's expertise and the needs of the department. As much as possible, we try to match assignments to student and/ or faculty requests, but these are not guaranteed. Pullman-based students receiving a TA should report to the Instructional Support Supervisor in Abelson 216 with a schedule of availability. All TA and RA appointments are either for the academic semester (8/16 to 12/31 or 1/1 to 5/15) or the academic year (8/16 to 5/15).

Students in a Master's degree program will receive a TA I (step 42) salary for the academic year (9 months) and Doctoral students with a Master's degree will receive a TA II (step 47) salary for the academic year. Doctoral students without a Master's degree will be paid at the lower rate (TA I) until they advance to PhD candidacy (i.e., after they complete their preliminary examination), and from then on, they will be paid at the higher rate (TA II).

Paychecks are mailed on the 10th and 25th of the month and cannot be forwarded. It is recommended that students sign up for direct deposit, which can be done through the finance office. To report changes of address, go online to [WorkDay](#).

The maximum time for guaranteed financial support under graduate appointments is two years for a Master's student, five years for a Doctoral student who possesses a Master's degree, and six years for a Doctoral student admitted without a Master's degree. In extenuating circumstances, the graduate student may submit a request, using the procedures outlined in the [SBS policy on extensions](#), to the Associate Director for Graduate Studies and the Graduate Programs Committee (GPC) for a one-semester

extension of appointment as a “Temporary Teaching Assistant.” Each case will be evaluated individually considering the student’s record and special circumstances of the request. Extension requests are dealt with one semester at a time. In general, priority for TA positions is as follows: PhD and MS students enrolled in an SBS degree who are within their period of guaranteed support, PhD students enrolled in an SBS degree with an approved TA extension request, MS students enrolled in an SBS degree with an approved TA extension request, MPS students under the guidance of an SBS advisor. First extensions have priority over second extensions, and so on.

IMPORTANT: SBS extensions are *separate* from the Graduate School’s extensions and are handled differently. Note in particular that a PhD student has 6 semesters to graduate after passing their qualifying exam per Graduate School policy. Thus, for example, a PhD student who enters the program without a MS degree and passes their qualifying exam during their second year of study would not need an extension of TA support to continue into their (guaranteed) 6th year of support from SBS, but *would* need *an extension* from the Graduate School. More details on Graduate School extensions can be found in [Chapter 6F of the Graduate School Policies and Procedures manual](#).

Graduate students on appointment enter into an agreement with the University that both parties are expected to honor. University policy requires graduate appointees to work 20 hours per week and to be at work each workday, including periods when the University is not in session with the exception of legal holidays (see [WSU Holidays](#)). To maintain an assistantship, a student must be enrolled in a minimum of 10 credits for the entire semester. With satisfactory performance and the availability of funds, the school will continue to provide the student with financial support.

3.1.1 Summer Teaching Assistantships

A small number of summer teaching assistantships are available each year. To apply for summer teaching assistantships, a student must provide the Graduate Coordinator with a letter from their advisor that states they have no other means of summer support. Applications will be ranked based on the following criteria (in decreasing order of importance):

1. TA experience in one or more of summer courses offered
2. prior TA evaluation scores

3. a demonstrated lack of prior summer TA support
4. degree sought; PhD students will have priority over MS students
5. whether a student is progressing on time to complete his or her degree (students on extensions are not eligible)
6. whether the student has submitted all relevant paperwork to the graduate school based on time in residence

3.2 RESIDENCY

Students with at least half-time appointments as research or teaching assistants may qualify for a waiver of tuition by establishing residency in Washington State. Information and the application form are [available online here](#). The deadline for submission of the questionnaire and documentation is the **30th calendar day** of the third semester. However, it is to your advantage to submit your file prior to the beginning of the semester to be considered for a change of residence status by the tuition due date. Allow 3–4 weeks review time. After reading the requirements, students should discuss any questions regarding their residency with the Graduate School. Failure to promptly establish residency places the non-resident tuition waiver in jeopardy and may subject the student to full non-resident fees.

3.3 HANDLING CLASSROOM DISTURBANCES

The College of Arts and Sciences recommends the following guidelines to teaching assistants on handling classroom disruptions:

Instructors must be prepared to handle the unexpected. One unpleasant task that confronts all instructors at some time is handling a disruptive student. Each instructor has his or her own personal approach to such problems, but a few guidelines are described here in an effort to provide some direction for teaching assistants.

1. Since classroom disruptions come in many sizes and forms, no general policies can be applied to every situation. The cardinal rule, however, is for the instructor to remain as calm as the situation warrants. The instructor should remember

that he/she is serving as a University official, and thus has authority supported by the State of Washington Administrative Code.

2. Most disruptions can be handled within class. Most students will not repeat disruptive behavior if it is pointed out to them. The instructor's personal style will determine the approach to be taken in informing the student of the inappropriate behavior and of the admonition to cease and desist.
3. In cases of repeated disruptive behavior that is not serious enough to cause immediate risk to the class, the teaching assistant should inform the course faculty instructor, who should then undertake corrective action.
4. In case of a serious incident that causes physical or verbal intimidation of the instructor or students and that cannot be handled within the classroom, the teaching assistant should leave the room and contact the course faculty instructor for assistance. If the faculty instructor is not available, the director or another faculty member should be immediately notified (for night time labs, the campus police may be contacted).
5. In extreme cases of disruptive behavior where the teaching assistant perceives there to be an immediate threat to the safety of persons or to the continuation of orderly instruction, the teaching assistant may leave the classroom and contact the campus police for assistance.
6. The university simply does not tolerate cheating. Cases of cheating should be immediately documented and taken to the faculty member responsible for the course.

3.4 GRADUATE STUDENT ANNUAL REVIEWS

[Graduate School Policy](#) requires an Annual Review of each graduate student. Students will normally be provided with an evaluation form in late December/early January (see Appendix 3.4 for an example; the most current version of the form will be provided each year). Forms should have both the student's and their Thesis Advisor's comments complete and turned back into

the Graduate Coordinator *before the end of February* of each year. **Any student who fails to submit an Annual Review form, complete with student *and* advisor comments, by the deadline may be ineligible for intra-departmental fellowship funding (e.g., Research & Training Fellowships).**

The Graduate Programs Committee reviews each student's performance, including performance as teaching assistants, for those on TA appointments. The Associate Director for Graduate Studies will provide comments on the evaluation and return it to the student. A digital copy will be placed in the students online file and additional copies will be made available to the student and their thesis advisor.

If a student's progress is unsatisfactory, their Advisory Committee will be consulted to determine whether continuation of the student's graduate program is warranted. The Associate Director for Graduate Studies will notify the student in writing of the committee's recommendation and forward a copy of the report to the Graduate School. In the case of two unsatisfactory annual reviews in successive years, the student may be dismissed from the graduate program.

Teaching assistants are also evaluated by student questionnaires each semester. The Instructor in Charge will summarize the teaching evaluations and comments and will make a copy of the summary available to the TA and the Scientific Instructional Technician. If a TA's performance is unsatisfactory, the Associate Director can, in consultation with GPC, make a recommendation to the Director of the School of Biological Sciences to terminate the appointment.

3.5 TRAVEL

Authorization for all off-campus travel must be obtained before leaving campus to be eligible for accident insurance or reimbursement of expenses. Graduate students must obtain approval from their supervisors and the Director of the School of Biological Sciences before all trips. If travel is to be reimbursed, travel advances can be obtained by submitting a request at least ten working days before the trip.

Graduate students are encouraged to attend professional meetings. Support is available for travel and includes Graduate Student Research and Training Fellowships (see [Section 6.0](#)), individual and block grant travel programs, and travel support from faculty grants. Assistance with locating funding is available through the [Office of Research Support and Operations \(ORSO\)](#).

3.6 LEAVE

Students on appointment at WSU do not earn vacation or sick leave. Any absence must be arranged in advance with the RA supervisor or TA instructor of record, as well as the Director of the School of Biological Sciences.

3.7 CONSENSUAL RELATIONSHIPS

Graduate students may rightfully develop consensual relationships. As a matter of sound judgment, graduate teaching and research assistants in the University community accept responsibility to avoid any apparent or actual conflict of interest between their professional responsibilities and personal relationships with students or those whom they supervise, evaluate, or exercise other relationships of power or authority. If any questions arise regarding consensual relationships, [please see the WSU policy](#).

3.8 EXIT

Before departing from WSU, students should return all teaching and research materials and keys, leave a forwarding address, and consult with their advisor about management and archiving of their thesis data, cleaning up samples, chemicals, etc., from their research. Students also need to meet with the Director of Graduate Studies for an exit interview.

3.9 FUTURE EMPLOYMENT

The ability of graduate students to gain employment in their chosen field is of great interest to the faculty. During the course of training, graduate students are strongly encouraged to attend

scientific meetings, present and publish their research work, and meet scientists in their field of interest. Students will also become aware of positions in their fields through meetings, and announcements in society newsletters, and scientific journals. Information on positions available to MS and PhD graduates is posted on the second floor of Abelson Hall.

3.10 SAFETY PROGRAM

3.10.1 Safety Training

Safety training is required of every new graduate student regardless of prior training. A safety training session will be presented by permanent members of the Safety Committee during graduate student orientation in August, before the beginning of Fall semester. Students arriving at other times of the year will be individually instructed before they begin work. This training will include both general safety and laboratory safety. The safety orientation will be documented on appropriate forms to be signed by the employee. These forms are to be kept in the employee's permanent file.

A graduate student's thesis supervisor will be responsible for furnishing more site-specific information. This will include the following items:

1. location of the Laboratory Safety Manual
2. location of the nearest Material Safety Data Sheets
3. location and use of the chemical spill kit
4. location and update procedure for the chemical inventory
5. location and use of personal protective equipment and other safety equipment
6. lab-specific standard operating procedures
7. lab-specific chemical storage plan
8. lab-specific disposal procedures for sharps, glass, biohazards, chemical waste, and radioisotopes
9. other lab-specific practices

Employees are responsible for conforming to the Washington Industrial Safety and Health Act regulations, which include: 1) studying and observing all safety practices governing their work; 2) offering safety suggestions contributing to a safer work environment; 3) applying the principles of accident prevention in their daily work and using proper safety devices and protective

equipment as required by their employers or employment; and 4) reporting to their immediate supervisor each industrial injury or occupational illness, regardless of the degree of severity.

3.10.2 Safety Committee

The committee consists of five permanent members and two rotating faculty positions. The faculty will serve two-year terms and act as chair during their second year. The functions of the Safety Committee are:

1. to act as a two-way communication link for safety matters between University administration and the School of Biological Sciences
2. to formulate safety policies for the School of Biological Sciences

3.10.3 Accident Reporting

Graduate students should promptly report *all* accidents, occupational illnesses, and near misses immediately to their supervisors. The supervisor will fill out a report within 24 hours and have the employee sign it. Teaching assistants are to promptly fill out an Incident Report form to report incidents involving students in teaching laboratories. Report forms are available next to the First Aid Kits in all laboratories. Incident Reports [are available online](#).

For fire, police, and ambulance emergencies and hazardous material spills--call 911. In the event of radiation contamination or spill call the [Radiation Safety Office](#) at 509-335-7183.

4 SCHOOL OF BIOLOGICAL SCIENCES FACILITIES

4.1 INTRODUCTION

Opportunities at WSU for basic research in the School of Biological Sciences are especially strong in plant and animal physiology, modern structural plant science, animal behavior, genetics, ecology and evolutionary biology, systematics, and the health sciences. Each of these disciplines provides many opportunities for careers in academia, agriculture, government, and industry in the U.S. and abroad.

4.2 RESEARCH FACILITIES

The School of Biological Sciences is well equipped for many modern research procedures in the life sciences, including cloning, sequencing, and characterization of genes, gel electrophoresis, DNA restriction fragment analysis, *in situ* hybridization, microautoradiography, image analysis, cell culture, isotope ratio by mass spectrometry, and plant gas exchange and fluorescence measurements. The school has excellent growth chamber, greenhouse, and darkroom facilities. In addition, it manages several major University facilities, such as the Marion Ownbey Herbarium, which contains more than 300,000 mounted specimens of vascular plants and cryptogams. The Conner Museum contains more than 60,000 specimens for zoological study. Other major facilities include the Franceschi Microscopy and Imaging Center, which is housed in Abelson hall within the School of Biological Sciences. Students interested in field-oriented projects have access to the Smoot Hill Biological Reserve and experimental garden space on Observatory Hill and on Airport Road. Vivarium facilities are available for students whose research will involve the use of live animals. However, it is crucial that protocols for research involving vertebrates be submitted to and approved by the Institutional Animal Care and Use Committee (IACUC) before *any* work is undertaken (this includes both field and laboratory research). Students must also take an animal handling course. Further information may be obtained from [the IACUC's website](#). The Owen Science and Engineering Library, adjacent to the Life Sciences Complex,

contains one of the foremost collections of library materials in western North America.

4.3 PLANT GROWTH SPACE

The school has a 4,000 sq. ft., 9-compartment greenhouse on the 7th floor of Abelson Hall and a 2,800 sq. ft., 4-compartment greenhouse at the Steffen Center. Both greenhouses are used for teaching and research. In addition, 23 plant growth chambers and 4 tissue culture chambers are located in Eastlick Hall (B93, B95, and B97) and one large growth room in Heald Hall (302C). These are used primarily for research. All requests for space must be approved by the student's major advisor and submitted early in the fall semester to the Plant Growth Facilities Manager on the space request form ([Appendix 4.3](#)). Space assignments will be made jointly by the Plant Growth Facilities Manager and the Director of the School. Consult the Plant Growth Facilities Manager should your space needs change at any time during the year.

Ultimately, the care of plants in the greenhouses and growth chambers will be the student's responsibility. Routine watering, fertilization and pest control in the greenhouse are performed by the greenhouse staff. Routine watering and fertilization of growth chamber plants are the responsibility of the student. Temperature, photoperiod and ventilation adjustments, fumigation, spray of pesticides, and general care of the greenhouse and growth chambers are the responsibility of greenhouse personnel. Students should not perform any of these jobs, except under direct supervision. Students must be checked out of greenhouse or growth chamber space by the Plant Growth Facilities Manager when their studies are completed. Work areas must be cleaned, pots washed and growing media disposed of as directed by greenhouse personnel. Report immediately any malfunctions or problems to greenhouse personnel. Should problems arise during off-hours, call Amanda Linskey at 509-596-2399 or email her at alinskey@wsu.edu. If she is unavailable, call the Physical Plant at 509-335-9000 for immediate assistance.

5 DEGREE REQUIREMENTS

5.1 INTRODUCTION

With the assistance of your thesis advisor you are expected to establish a research advisory committee and submit a [Program of Study](#) (which outlines your planned coursework to complete your degree) to the graduate school by the end of your first fall semester if you are an MS student or end of your first spring semester if you are a PhD student. You should also begin to develop a research proposal modeled after federal grant proposal formats (such as NSF, USDA, and NIH). Typically, MS students present this proposal to their research advisory committee during the second semester and PhD students by the beginning of the fifth semester.

5.1.1 Degree Forms

- Students are responsible for preparing all forms and paperwork required for completion of their degree, such as the Program of Study form, program change forms, and exam scheduling forms. The SBS Graduate Coordinator is available to assist with completion of these forms.
- All forms required for a degree program must be submitted to the SBS Graduate Coordinator, who will directly submit them to the Graduate School.
- Students should also direct questions about degree programs and forms to the SBS Graduate Coordinator rather than to the Graduate School. This is to help protect Graduate School staff from being overwhelmed. (The Graduate School has a relatively small staff who must administer all of the well over 3000 graduate degrees on all WSU campuses.)

5.2 THESIS ADVISOR

Normally the thesis (i.e., major) advisor for a degree program is identified before admittance into the program and the award of a TA or RA. The thesis advisor is the graduate student's primary contact concerning all matters related to their program of study

and thesis research. The advisor assists in selection of the thesis committee, development of a program of study, and thesis research proposal, and is responsible for guiding, facilitating, and monitoring the student's academic and professional growth, reviewing program changes, and arranging for graduate student support. The student should consult with their advisor before registering for courses each semester.

5.2.1 Change of Advisor

Under certain circumstances a student may wish to change graduate advisors during the course of study. If such a change is feasible, the student should discuss this matter with their current advisor, the new advisor, and/or the Associate Director for Graduate Studies.

5.3 ADVISORY COMMITTEES

The Masters or Doctoral Advisory Committee is decided jointly by the student and thesis advisor. The committee consists of the faculty advisor, who serves as chair, and other faculty in the area of the student's research interest.

5.3.1 Size

- The advisory committee for an **MS** student must include at least three WSU faculty members with current appointments.
- The advisory committee for a **PhD** student must include at least three WSU Graduate Faculty¹ members with current appointments.

¹Each WSU department or school has its own Graduate Faculty. All tenured and tenure-track SBS faculty are also SBS Graduate Faculty. SBS career-track faculty and faculty external to SBS may become members of the SBS Graduate Faculty. Requirements for SBS Graduate Faculty status are described in the [SBS graduate program bylaws](#).

5.3.2 Composition

- At least half of the committee members must be SBS tenured or tenure-track faculty.
- A **strict majority of committee members** (e.g., 2 of 3, 3 of 4, or 3 of 5) must be active members of the SBS Graduate Faculty.²

5.3.3 External Committee Members

- A brief rationale must be provided on the Program of Study form for any committee member who is not a member of the SBS Graduate Faculty. A CV of such an external faculty member must be submitted with the POS form to the Graduate School.
- A student may add an advisory committee member who is not WSU faculty. Such an external committee member must hold a degree comparable to that sought by the student and have special knowledge that is particularly important to the student's proposed program. The student will need to submit an [External Committee Member Request Form](#) along with a current CV of the external member to the Graduate School.

5.3.4 Roles

The advisory committee guides the student's research and approves a program of study. The program of study must include those courses needed to fulfill curriculum requirements. The program of study must also include courses to correct any deficiencies (e.g., organic chemistry, calculus) as identified by the advisory committee. The committee also administers the thesis proposal defense and final examination for MS students and the preliminary, dissertation proposal defense, and final examinations for PhD students.

²For example, a committee of size 4 compliant with these requirements could include 2 SBS tenured/tenure-track faculty and 1 SBS Graduate Faculty member who is not SBS tenured/tenure-track faculty.

5.3.5 Meetings

Scheduling of PhD and MS advisory committee meetings to discuss a student's progress in their degree program is left to the discretion of the student, their thesis advisor, and their advisory committee. Nonetheless, it is strongly recommended that the student meet with their committee **at least once per year**.

5.3.6 Conflict-of-Interest Policy

When forming their advisory committee, students should avoid to the extent possible situations that may constitute or may be construed as a conflict of interest (COI). COIs can occur between the student and a faculty member on the advisory committee or between faculty members on the advisory committee. If a COI among faculty on the same advisory committee is unavoidable, then SBS policy requires that the number of committee members with conflicts not exceed the number of committee members without conflict. In addition, the committee members without conflict must all be members of the SBS Graduate Faculty.

Examples of student-faculty COIs:

- a new faculty member, who was recently a WSU graduate student, serving on the advisory committee of a former graduate student peer
- a faculty member, who is the employer or supervisor of a staff member pursuing a graduate degree, also serving on that staff member's advisory committee

Examples of COIs between faculty members:

- a non-tenure track faculty or staff member serving on the same advisory committee as their employer or supervisor
- advisory committee members whose impartiality may be impacted because of close professional or personal relationships that are separate from their WSU faculty or staff roles, such as domestic partnership or shared financial interests, like co-owning a company

5.4 PROGRAM OF STUDY

All students should become familiar with the Graduate School course requirements as outlined in the [Graduate School Policies and Procedures](#). Forms for submitting MS and PhD paperwork are available [online](#). Form filing deadlines are summarized [here](#) on the SBS website. The student plans the course program with the help of their thesis advisor and advisory committee.

5.4.1 Program of Study

The Program of Study (POS) must be completed using [this form](#). Students should submit their POS to the Graduate School via the SBS Graduate Coordinator by the end of their second semester.

The Graduate School requires that MS students submit their POS no later than the semester prior to the semester they plan to graduate. PhD students must submit their POS no later than their 3rd semester of study. To ensure within-semester processing, programs of study must be submitted to the Graduate School by October 1 for Fall semesters and by March 1 for Spring semesters.

5.4.2 Research Credits

A flexible number of credits is allowed for research and thesis each semester. Students, with their advisor's approval, should register for BIOLOGY 700 or BIOLOGY 800 to bring their credit load to 10 or more credits each semester. (**Important:** *Failure to enroll in at least 10 credits will result in loss of the tuition waiver for teaching and research assistantships and the student will be billed by the university for the full amount of tuition.*)

The thesis advisor is responsible for setting expectations each semester a student is enrolled in research credits and provides an S or U grade at the end of the semester based on the student's performance in meeting those requirements. Note that two successive U grades may result in dismissal from the graduate program upon recommendation of the student's thesis advisor. In extenuating circumstances, faculty may use the X grade to indicate continuing progress toward completion of those requirements. An X grade should be changed when the faculty member determines that the student has successfully met the requirements for that semester; X grades should be changed by faculty no later than the semester of the final exam.

5.4.3 MS Degree Programs in the SBS

Thesis MS in Biology and Plant Biology

Core course requirements: A minimum of 21 credits of 400-level (maximum 6 credits) and 500-level graded course work is required for the thesis MS degree program. Timelines and deadlines for the thesis MS degree program can be found [here](#).

SBS course requirements: A minimum of 9 graded credits from the School of Biological Sciences (courses with prefix BIOLOGY) is required for the thesis degree programs in Biology and Plant Biology. As a part of the graded credits from the school, MS students are expected to enroll in

- at least 1 credit of special topics seminar **BIOLOGY 589** (Advanced Topics in Biology)
- the 2 credit-hour grant writing course **BIOLOGY 582** (Professional Communication in Biology — Grant Writing)
- the teaching in biology course **BIOLOGY 585** (Professional Development & Training for College & University Teaching)

At the discretion of the Associate Director for Graduate Studies, students may use comparable courses already taken at other universities to satisfy these course requirements.

Seminar attendance course: MS students are expected to enroll in the seminar attendance course **BIOLOGY 500 section 2** every semester. The thesis advisor is responsible for setting expectations and grading for this course. Many students satisfy this requirement by attending the weekly SBS Seminar in Pullman (Mondays 3:10–4:00), but some attend other regular seminars approved by their thesis advisor. MS students may waive this requirement for no more than one semester during their degree program.

Thesis proposal defense & public presentation: Thesis MS students must orally defend a written proposal of their

thesis research to their Advisory Committee and also give a public presentation of their thesis proposal. This requirement is internal to SBS and does not require a scheduling form. Ideally, the proposal defense will occur by a student's second semester of study. The defense exam and public presentation can occur in different semesters, but the student must enroll in 2 credits of **BIOLOGY 501, section 2** the semester of their proposal defense meeting. The public presentation can be scheduled as part of a regular weekly seminar (such as Biolunch) or another time, but it must be announced to all SBS faculty, graduate students, and postdocs.

The format of the written proposal is at the discretion of the student's Advisory Committee. For example, the proposal may follow the form of a grant proposal to an external funding agency. It is the committee's responsibility to approve the proposal and schedule the oral defense.

Grading (pass/fail) of the oral proposal defense exam will be guided by a [rubric](#) filled out by the student's Advisory Committee. Upon passing the proposal defense, the student's Thesis Advisor will (via email) provide a copy of the written proposal to the Graduate Coordinator and will verify that the student passed the exam.

Final exam: During the semester they intend to graduate, MS students will also present a public seminar to the School based on the student's thesis research while enrolled in one (ungraded) credit of **BIOLOGY 500, section 1**. The examination portion will be restricted to the student's Advisory Committee members.

Normative timeline for Thesis MS degree:

Year 1

Fall: coursework, assemble thesis committee, file program of study

Spring: continue coursework, begin research, research proposal defense and presentation

Summer: continue research

Year 2

Fall: complete coursework, complete data analysis

Spring: write and defend thesis, graduate

MS thesis general guidelines: It is generally expected that a MS thesis consists of at least two chapters including (a) an introduction that puts the work in a broader context and summarizes the main results and (b) a second chapter that is considered a publishable piece of work based on the student's original research conducted at WSU.

Non-Thesis MS in Biology

Core course requirements: A minimum of 30 total credit hours are required; 26 of these credits must be graded, and a minimum of 17 hours must be at the 500-level. Timelines and deadlines can be found [here](#).

The student must complete 4 credits of BIOLOGY 702 (Master's Special Problems, Directed Study and/or Examination), 2 of which must be taken in the semester of the final exam.

SBS course requirements: A minimum of 12 graded credits from the School of Biological Sciences (BIOLOGY prefix) is required for the non-thesis degree program in Biology.

The program must include at least some course work from all 3 areas of the SBS core curriculum (ecology, evolution, and physiology). The levels of coverage of each core area will be determined and approved by the student's Advisory Committee.

As part of the graded credits from the school, non-thesis MS students are expected to take one credit of advanced topics seminar (BIOLOGY 589) and the teaching training course (BIOLOGY 585).

Final exam/balloting meeting: In the final semester, the student will arrange for their Advisory Committee to hold a final exam/balloting meeting, scheduled through the Graduate School, to determine whether the student has satisfactorily met all the requirements of the

program. The student is not allowed to attend this meeting. Students must register for a minimum of 2 of the 4 required credits of BIOLOGY 702 for the term in which the balloting meeting is scheduled. Non-thesis MS students are exempt from the general requirement to present a seminar to the school.

5.4.4 PhD Programs in the SBS

The School of Biological Sciences offers PhD degrees in Biology and in Plant Biology. Requirements are the same for both degrees.

Core course requirements: A minimum of 21 credits of 400-level (maximum 6 credits) and 500-level graded course work is required for the degree. Up to 50% of these credits may be transfer credits from another university (e.g., for students with a MS) under Graduate School regulations and approval of the student's academic advisor. Timelines and deadlines for the PhD program can be found [here](#).

SBS course requirements: A minimum of 9 graded credits from the School of Biological Sciences (courses with prefix BIOLOGY) is required for the thesis degree programs in Biology and Plant Biology. As a part of their 9 graded BIOLOGY credits, PhD students are expected to enroll in

- at least 2 credits of special topics seminar **BIOLOGY 589** (Advanced Topics in Biology)
- the 2 credit-hour grant writing course **BIOLOGY 582** (Professional Communication in Biology — Grant Writing)
- the teaching in biology course **BIOLOGY 585** (Professional Development & Training for College & University Teaching)

At the discretion of the Associate Director for Graduate Studies, students may use comparable courses already taken at other universities to satisfy these course requirements.

To satisfy a **breadth requirement**, PhD students are required to take an additional 6 graded credits outside the student's

main research area; these courses will be determined and approved by the student's Advisory Committee.

Seminar attendance course: PhD students are expected to enroll in the seminar attendance course **BIOLOGY 500 section 2** every semester. The thesis advisor is responsible for setting expectations and grading for this course. Many students satisfy this requirement by attending the weekly SBS Seminar in Pullman (Mondays 3:10–4:00), but some attend other regular seminars approved by their thesis advisor. PhD students may waive this requirement for no more than two semesters during their degree program.

Dissertation proposal defense & public presentation: PhD students must orally defend a written proposal of their dissertation research to their Advisory Committee and also present a public seminar of their dissertation proposal. The proposal defense can occur before a student's preliminary exam but not later than one semester after advancing to candidacy. This requirement is internal to SBS and does not require a scheduling form. The defense exam and public presentation can occur in different semesters, but the student must enroll in 2 credits of **BIOLOGY 501 section 1** the semester of their proposal defense meeting. The public presentation can be scheduled as part of a regular weekly seminar (such as Biolunch) or another time, but it must be announced to all SBS faculty, graduate students, and postdocs.

The format of the written proposal is at the discretion of the student's Advisory Committee. For example, the proposal may follow the form of a grant proposal to an external funding agency. It is the committee's responsibility to approve the proposal and schedule the oral defense.

Grading (pass/fail) of the oral proposal defense exam will be guided by a [rubric](#) filled out by the student's Advisory Committee. Upon passing the proposal defense, the student's Thesis Advisor will (via email) provide a copy of the written proposal to the Graduate Coordinator and verify that the student passed the exam.

Exit seminar: Normally during the semester they intend to graduate, PhD students will present a public seminar to the School based on the student's dissertation research while

enrolled in one (ungraded) credit of **BIOLOGY 500, section 1**. A student's doctoral final examination can be scheduled separately from their public exit seminar.

Normative timeline for PhD degree (5 years with MS, 6 years without):

Year 1

Fall: coursework

Spring: continue coursework, assemble advisory committee, submit program of study

Summer: begin dissertation research project

Year 2

Fall: continue coursework and research

Spring: complete coursework; take oral preliminary exam

Year 3

Fall: complete dissertation proposal defense; apply for extramural funding, take courses as needed

Spring: continue research

Final year

complete research; write and defend dissertation

PhD Thesis general guidelines: It is generally expected that a PhD thesis will consist of at least four chapters including (a) an introduction that puts the work in a broader context and summarizes the main results and (b) three additional chapters that are considered publishable pieces of work based on the student's original research conducted at WSU.

5.4.5 Recommended Courses

SBS courses

Click [here](#) for an list of *BIOLOGY* prefix graduate courses from the online WSU catalog

Statistics courses

STAT 511 – Statistical Methods for Graduate Researchers

STAT 512 – Analysis of Variance of Designed Experiments

STAT 514 – Nonparametric Statistics

STAT 520 – Applied Multivariate Analysis

STAT 522 – Biostatistics and Statistical Epidemiology

STAT 530 – Predictive Models: Foundations in Data Science

STAT 535 – Regression Analysis

Other WSU courses

Soil_Sci 508 – Environmental Spatial Statistics

Soil_Sci 514 – Environmental Biophysics

Soil_Sci 531 – Soil Microbiology

Soil_Sci 568 – GIS Spatial Analysis

Anim_Sci 551 – Endocrine Physiology

Anim_Sci 558 – Molecular & Cellular Reproduction

MPS 525 – Plant Molecular Genetics

MBIOS 446 – Epidemiology

MBIOS 540 – Immunology

MBIOS 542 – General Virology

HORT 503 – Bioinformatics for Research (Fall, even years)

University of Idaho (cooperative courses– may be taken for WSU credit)

BIOLOGY 416 – Plant Diversity and Evolution

BIOLOGY 456 – Computer Skills for Biologists

WLF 552 – Ecological Modeling

WLF 544 – Large Mammal Ecology

WLF 545 – Wildlife Habitat Ecology

WLF 555 – Statistical Ecology

WLF 561 – Landscape Genetics

WLF 562 – Landscape Genetics Lab

5.5 DOCTORAL PRELIMINARY EXAMINATION

An oral **preliminary doctoral examination** is required for advancement to PhD candidacy. While concentrating on the area of interest as defined by the student's research topic, no topic is excluded from the oral preliminary exam.

This examination will be formally administered through the Graduate School ([more information](#)). Only the student's Advisory Committee may participate in the exam.

Preliminary examinations will be scheduled only for graduate students whose programs of study have been approved by the Graduate School, the Associate Director for Graduate Studies and the student's Advisory Committee, and only after most of the course work is completed (6 or fewer graded credits remaining to complete).

The preliminary exam should normally be scheduled no later than the end of the fourth semester for PhD students with an MS degree, and no later than the end of the sixth semester for PhD students without an MS degree.

Forms for scheduling the preliminary examination are available [online](#) and must be submitted at least 10 working days before the examination date.

The outcome (pass/fail) of this examination will be guided by a [rubric](#) filled out by the graduate student's Advisory Committee.

Failure of the preliminary examination makes it uncertain whether a candidate is qualified to complete the PhD degree program. If a preliminary examination is failed, the examining committee may conclude:

- a) that the candidate is unqualified and should not continue in their PhD degree program in SBS or
- b) that the candidate may be qualified and should be allowed to retake the preliminary exam. The second exam must be taken no earlier than three months after the first preliminary exam and no later than one year after the first exam. Failure of the second exam will result in dismissal from the SBS graduate program.

Although not required by SBS, a **written preliminary examination** may be given prior to the oral examination if requested by the student or the Advisory Committee. Unlike the dissertation proposal defense, this is a general knowledge examination based on questions provided by the student's Advisory Committee. To help ensure consistency, the following requirements for written exams apply:

- a) The student must schedule a meeting with their Advisory Committee at least two months prior to the date of the written examination to discuss the exam format and committee expectations.
- b) The format of the written exam will be decided upon by the Advisory Committee. The exam may be open- or closed-book. The committee may choose to assign a review paper, as long as its content does not overlap extensively

with that of the dissertation proposal. A description of the agreed upon-format of the exam will be placed in the student's file. The student's thesis advisor is responsible for administering the written exam.

- i) In the case of a closed- or open-book exam, the committee will inform the student of the general topic areas that should be studied prior to the exam. Questions from each committee should be given to the student's thesis advisor (who is also chair of the Advisory Committee) in advance. The advisor can request revisions of questions. The exam should occur over no longer than 5 consecutive business days and take no longer than 4 hours per committee member to answer questions.
 - ii) In the case of a review paper, the student will have at least two months to complete the review paper, which shall be formatted as a journal article manuscript.
- c) After the written exam, the student will consult with the Advisory Committee about their performance. If the student passes the written portion of the exam, they will be required to take the oral preliminary exam within 30 days. If the student fails the written exam, the student must retake the exam within 90 days.

5.6 THESIS-MS AND PHD FINAL ORAL EXAMINATION

Final examinations for the thesis-MS and PhD degrees will follow existing Graduate School regulations (see [Graduate School Policies and Procedures](#).) All graduate students must satisfactorily pass a final oral examination in defense of their thesis research.

After preliminary approval of the thesis by the Advisory Committee, the final examination will be scheduled through the Graduate School via the Graduate Coordinator. Copies of the thesis must be provided to each member of the Advisory Committee, Thesis Advisor, and the school at least 20 business days before the oral examination. An abstract should be placed in Owen Science and Engineering Library.

Only the student's Advisory Committee can participate in the oral examination. Questions asked during the final examination usually relate to the thesis research but are not limited to the thesis. Pass or failure of this examination will be guided by a [rubric](#) filled out by the graduate student's advisory committee. Upon completion of the oral examination, a signed copy of the thesis must be presented to the Graduate School within five working days. Copies of the thesis will also be presented to the School and the thesis advisor.

5.7 DISSERTATION/MS THESIS

5.7.1 Outline of Final Dissertation/Thesis

Students are expected to meet with their Advisory Committee one semester prior to anticipated graduation to outline the thesis or dissertation outline for their committee. This outline will serve as an agreement between the student and their Advisory Committee as to the content expected in the final thesis or dissertation. However, it is recognized that some content may change during the final writing stages of the thesis or dissertation, and in such cases, the student should work with their committee to approve a revised outline prior to scheduling their defense.

5.7.2 Dissertation/Thesis Formatting

For information on formatting the theses please refer to the graduate school's [Dissertation/Thesis Submission Guidelines](#). All theses and dissertations should also generally adhere to the following guidelines for the reference section as approved by the individual candidate's Advisory Committee:

- a) A complete draft of the MS thesis or PhD dissertation must be provided to the student's Advisory Committee at least 10 business days³ prior to when the student plans to have their committee sign their thesis or dissertation defense scheduling form. This means that if the student plans on meeting the Graduate School deadline of 10 business days prior to their defense, that they must give a complete draft

³ Business days exclude weekends and [university holidays](#).

of their thesis at least 20 business days prior to the anticipated defense date.

- b) The format for each chapter may follow the format for the journal to which the manuscript has been or will be presented (i.e., no consistent format is required between chapters).
- c) Full citation for each reference (i.e., including all the authors and the title of the article) must be given throughout the thesis, but otherwise each chapter may follow the format of a particular journal.
- d) Use a consistent form of citations throughout the thesis or dissertation with the student selecting the format of a particular journal that gives the complete citation.

5.8 TIMING OF MS THESES AND PHD DISSERTATION DEFENSES

Thesis and dissertation defenses will take place during Fall and Spring semesters of each academic year. Only under unusual circumstances can a defense be held during Summer, and only with prior approval of the student's Advisory Committee early in the preceding Spring. Many faculty in the School have nine month appointments and research programs that keep them away from campus during summer, and many professional meetings and symposia take place at that time. Consequently, it may be impossible to find sufficient time during summer for the committee to read the draft thoroughly, provide comments, allow sufficient time to incorporate comments into a version suitable for defense, and identify a date for the final exam. As such, students should not assume that committee members will be able to convene for a defense during Summer, and should plan accordingly. Students need to find a day when everyone is available and allow a few weeks for all members of the committee to read and comment on the penultimate draft. Only after each committee member's comments have been received and corrections made to the draft can each committee member be expected to sign the defense scheduling form.

5.9 GRADUATION

Students are encouraged to apply for graduation and their degree the semester before they plan to graduate and obtain the appropriate packet of information regarding procedures and deadlines for thesis defense and graduation. Failure to meet deadlines could require enrollment for an additional semester. The Graduate School deadlines for graduation can be found [here](#).

5.10 EXTENSION REQUESTS

Occasionally, a student may not complete their degree within the time frame of their guaranteed assistantship funding from the School of Biological Sciences or within the time frame required by the Graduate School due to a variety of circumstances. In the former case, the student must request a funding extension from the SBS Graduate Programs Committee (GPC); in the latter case, the student would need to request a degree extension from the Graduate School. Funding and degree extensions are completely separate, including the processes required to request an extension. The following sections describe the processes for requesting extensions in each case.

5.10.1 Extension Requests for SBS Funding

SBS guarantees 2 years (4 semesters) of assistantship support for thesis-MS students, 5 years (10 semesters) of support for PhD students with an MS degree, and 6 years (12 semesters) of support for PhD students without an MS degree. If a student needs funding beyond these guaranteed periods, they must submit a funding extension request to the GPC via the Graduate Coordinator.

Funding extension requests are only considered one semester at a time. Extension requests for Spring semester assistantship funding are due **September 15** and extension requests for Fall semester assistantship funding are due **March 15** annually.

The request for an extension of funding must include the following:

1. justification for the funding extension request, outlining the **extenuating circumstances** that led to the delay in graduation beyond the normative time frame
2. a timeline for completion of the degree program
3. a letter of support from the student's Thesis Advisor agreeing that the plan and timeline for completion is reasonable

5.10.2 Graduate School Degree Extension Requests

The [Graduate School](#) allows a maximum of 6 years to complete an MS degree. The maximum time allowed to complete a PhD is 10 years but the Graduate School also requires that the doctoral degree be completed within 3 years of passing the preliminary examination⁴. If a student requires more time to complete their MS or PhD degree, they must submit a degree extension request to the Graduate School.

The Graduate School allows for up to 3 degree extensions. The process for requesting the First degree extension is relatively routine. Requests for the Second and Third degree extensions are considerably more involved, including requiring a vote of approval by the SBS Graduate Faculty. Detailed procedures for requesting First, Second, and Third degree extensions are described in [Chapter 6F](#) of the Graduate School Policies and Procedures manual and must be followed closely.

Graduate degree extensions are approved for one year.

6 RESEARCH & TRAINING FELLOWSHIPS

Through generous contributions from former WSU faculty, colleagues, students, and their families and friends, over a dozen endowments have been established to support graduate training and research of

⁴ Most degree extension requests are due to the requirement of finishing the PhD degree within 3 years of passing the prelim.

students in the School of Biological Sciences. These funds provide excellent opportunities for SBS graduate students to complete their degrees and develop professionally. Descriptions of the supporting endowment award sources are provided in [Appendix 6](#).

6.1 APPLICATIONS

The most current version of the application will be emailed to students prior to each deadline.

Students may submit no more than one application each academic year.

There are two application due dates each year: **October 1** for funds starting in January and **March 1** for funds starting in May.

Applications must include a letter from the student's thesis advisor that states they have seen and approved the student's justification and the allocation of funds requested.

The application, *including the thesis advisor's support letter*, must be submitted in a single pdf to the SBS Graduate Coordinator by 5:00pm on the due date. The name of the combined file must be in the format Lastname.Firstname.Term[F20xx or S20xx].R&TFellowship.pdf

6.2 ELIGIBILITY

SBS thesis-MS or PhD student in good standing.

Although a student may apply for a fellowship before their Program of Study (POS) has been submitted, they cannot receive or expend an award until their POS has been filed formally with the Graduate School.

6.3 AWARD LIMITATIONS AND ADJUSTMENTS

Awards for a given deadline are limited by endowment funds available at the time of application.

Adjustments to funding requests will consider cumulative caps, requests by different students for the same activity (e.g., costs to attend a specific conference), and possibly other factors (e.g., the

necessity of foreign travel for a training also available domestically).

Relatively large requests will require more extensive justification and may be subject to greater reductions than smaller requests if reductions are necessary.

6.4 STIPULATIONS

Awards cannot be used for purposes other than those described in the application. Stipends, once awarded, cannot be re-budgeted as direct research funds.

Unused funds will be reclaimed automatically one year after the award date. Only expended amounts will count against a student's cumulative cap.

7 GRADUATE STUDENT REPRESENTATION

7.1 SCHOOL OF BIOLOGICAL SCIENCES REPRESENTATION

Graduate students hold several important representative positions within the School. One graduate representative serves as a liaison with the faculty and attends all faculty meetings, except those involving personnel matters. Each fall graduate students may elect this representative and notify the Director of their selection. The representative conveys graduate students' concerns or suggestions about the school to the faculty. In turn, the representative is responsible for conveying actions by the faculty to the students. The Director of the School of Biological Sciences will solicit graduate student representatives for these committees. In addition, all SBS students are eligible to join the Biology Graduate Student Association (BGSA), which is affiliated with the WSU Graduate and Professional Student Association (GPSA). The BGSA holds regular meetings and occasional events, including the annual graduate student research symposium, held each spring.

7.2 UNIVERSITY REPRESENTATION

All graduate students in the university who are currently enrolled in 10 or more hours are members of the GPSA. GPSA represents the concerns of graduate and professional students both within the university and nationally. The School of Biological Sciences has two representatives to the GPSA Senate (the governing body for GPSA) who are elected each fall. In addition, many of the important advisory committees within the university have voting positions for graduate students. Students are encouraged to become involved in positions of interest. For additional information please consult the [GPSA website](#).

7.3 GRIEVANCES

If grievances arise, the student may discuss the problem with their thesis advisor, the Associate Director for Graduate Studies in the school, the Director of the School of Biological Sciences, or the [WSU Ombudsman](#) (Wilson-Short Hall, Room 2, telephone 509-335-1195). If such grievances are not resolved, they may be also brought to the Graduate School [following these guidelines](#).

APPENDICES

APPENDIX 4.3: REQUEST FOR PLANT GROWTH SPACE

Name:

Growth Chambers

Type of Chamber Needed -

Number of Chambers Needed -

Plant Material to be Grown -

Time Needed -

Conditions – Light Intensity -

Photoperiod -

Temperature -

Relative Humidity -

Greenhouse

Amount of Space Needed -

(can be room number or number of square feet of bench space)

Plant Material to be Grown -

Time Needed -

Conditions – Photoperiod -

Temperature -

Supplemental Lighting – Yes ___ No ___

Type of Potting Supplies – Standard Greenhouse Potting Soil -

Sand - _____

Other - _____

Size of Pots - _____

Additional Comments:

APPENDIX 6: SBS GRAD STUDENT ENDOWMENT AWARD SOURCES

The following descriptions provide some background behind the endowment sources used to fund SBS Graduate Student Research & Training fellowships.

Aase Fellowship in Honor of Andrew and Bertine Aase

Dr. Hannah Aase, PhD University of Chicago, 1914, was a member of the Plant Biology faculty at WSU for 35 years from 1914-1949 and was the first Emeritus Professor in the school. She began her career at WSU as she describes it as "instructor in anything whatsoever" which included teaching histology-anatomy and microtechnique. Being widely admired, she was described as a remarkable lady. In a seminar on May 17, 1949, she presented a colorful history of Plant Biology at WSU from the very beginning of the university in midwinter of 1892. She continued to read technical journals into her 90's. On the occasion of her 90th birthday one professor wrote, "You were always the eager 'student,' always sharp as a briar, but you had a way of living with your plants, in your garden and your laboratory, that gave you a peace of mind we all envied but were unable to emulate."

The Aase Fellowship, in honor of Professor Hannah Aase, is used primarily for recruitment of new graduate students. This fellowship provides at least \$2000 (\$1,000 a year for two academic years) in stipend support above and beyond that of a student's assistantship. The fellowship may be used as a stipend or for any purpose the recipient wishes.

Orlin and Susann Biddulph Endowment in Botany

Dr. Orlin Biddulph, PhD, University of Chicago, 1934, was a member of the Plant Biology faculty at WSU for 36 years from 1937-1973. He was an internationally known plant physiologist who investigated absorption and translocation of mineral elements, and metabolite and mineral translocation in the phloem. He also established a Molecular Biophysics Laboratory with a unique biological spectrograph for the irradiation of whole plants with monochromatic radiation, and electron spin resonance and nuclear magnetic resonance spectrometers, and

chaired a Biophysics Program. Dr. Susann Biddulph completed her PhD in Botany at WSU in 1944. It was here that they met and were married, working together as research associates in the Department of Botany until retirement. The Biddulph Endowment was established by family, friends, and colleagues to honor both of their many achievements and contributions to the University community.

Howard E. Brewer Memorial Endowment in Botany

Howard Brewer was an Emeritus Professor in Plant Biology at Washington State University. The Howard E. Brewer Memorial Endowment was established by his nephew, Don Brewer and several other family members to encourage and enhance the education experience of graduate students in the School of Biological Sciences who study plant biology. In addition to graduate fellowships, funds from this endowment are used to support the Howard Brewer Seminar Series in the School of Biological Sciences.

Brislawn Graduate Fellowship in Biological Sciences

The Brislawn Graduate Fellowship was established by the descendants of Guy and Mildred Brislawn to honor them and the many other members of the Brislawn family who have been associated with WSU for over 100 years.

Rexford Daubenmire Fund for Graduate Education

Dr. Rexford Daubenmire, PhD University Minnesota, 1935, was a member of the Plant Biology faculty from 1946-1975. A fund was established beginning in the fall, 1994, in honor of Professor Daubenmire. Support from this fund will be used for graduate student training in Plant Biology when an endowment level is achieved. "Dauby", as he was universally known to generations of Plant Biology alumni, was an internationally renowned plant ecologist. During his highly productive career at WSU he supervised more than 35 PhD students and authored three widely used textbooks. His research interests spanned the field of plant ecology from drought and heat tolerance, symbiosis, fire ecology, ecotypic specialization, succession and soil deterioration in consequence of heavy grazing, and vegetation classification to ecologic plant geography. He was also a past president of the Ecological Society of America. Dauby has had a lasting influence

on the world-wide stature and reputation of the Department of Plant Biology at WSU and set a high standard for scholarship and research that is continued in the School of Biological Sciences.

Carl H. Elling Endowment in the School of Biological Sciences

The Carl H. Elling Endowment was established to support training and research opportunities for Plant Biology and Biology graduate students in the School of Biological Sciences.

Carl was born August 28, 1917 in Tacoma, WA and died August 5, 2007. Carl graduated from Washington State College in 1941 with a BS in Zoology. In WWII he flew the Pacific theater with the 494th Bomber Group. Carl worked as a Fishery Biologist for the National Marine Fisheries Service, with assignments in Alaska and at Bonneville Dam. He retired in 1974. Carl was an avid fisherman and bird hunter. He belonged to the American Institute of Fisheries Research Biologists, the Washington Fly Fishing Club, and the Alberta International Ale and Quail Club.

Hardman Native Plant Award in Plant Biology

The Hardman Foundation promotes conservation biology. Research that promotes conservation biology includes projects in systematic Plant Biology that contribute to understanding of evolutionary development or regional native plant variation within species or species complexes. Also important are studies of flowering plants considered rare, or that are depleted in range and need study, or require propagation for enrichment of their native range for use in botanical gardens or other suitable preserves. In addition, botanical investigations of geographical, climatological, edaphic and biotic factors that have led to adaptation are important subjects of conservation research.

Hardman Native Plant Awards were established through a gift from the Hardman Foundation to support Plant Biology graduate student research in the School of Biological Sciences. In developing the award, the Hardman Foundation recognizes the importance of all botanists who identify with and support conservation biology. Therefore, the award is not restricted to any particular botanical discipline.

Betty Higinbotham Fellowship

Betty Higinbotham was the wife of Botany Department faculty member Noe Higinbotham. She was an accomplished botanist and shared her husband's interest in nature. She was a writer and editor for several national publications and a freelance writer for scientific journals and nature magazines. She graduated from Butler University, receiving a bachelor's degree in Plant Biology in 1932 and a Master's degree in 1935.

The Betty W. Higinbotham Trust was established to fund training and research opportunities for Plant Biology graduate students in the School of Biological Sciences. Although priority for awards is given to students wishing to study marine algae at the Friday Harbor Oceanographic Laboratory, applications can also be made to support off-campus or other research in plant biology.

Noe Higinbotham Endowment in Botany

Dr. Higinbotham was an internationally recognized plant physiologist as well as devoted teacher and mentor. He was a member of the Plant Biology faculty from 1948-1978, and during that time he pioneered investigations into the electrical properties of plant cells, receiving national and international honors for his research and writing. He earned an A.B. degree from Butler University in 1937 and a PhD from Columbia University in 1941.

The Noe Higinbotham endowment was established through generous contributions from Betty Higinbotham and friends, colleagues, and students of Professor Higinbotham to support graduate student research and training in Plant Biology.

Howard Hosick Student Research Fund

The Howard Hosick Research Fund honors Howard Hosick, a member of Washington State University's faculty for 34 years. Howard had a busy and productive career studying cancer, cell biology, and development.

James R. King Memorial Fund

The James R. King Memorial Fund honors James King, a long-term member of Washington State University's faculty who studied the physiological ecology of birds.

Charles W. & William C. McNeil Memorial Graduate Fellowship

Charles Windslow McNeil was a longtime professor of Biology and a parasitologist at Washington State University. In 1946, Charles accepted a faculty position at WSU and began a long teaching and research career in Biology. Charles spent six months as a visiting scientist in the Department of Parasitology at the Alexandria University in Egypt in 1965-66. In 1964-65 and again in 1968-69, he served as acting chair of the Biology department.

Charles married Edna Wiesner in 1940. Their children are a son, Earle W. McNeil; a daughter Ellen E McNeil; eight grandchildren and six great-grandchildren. A son William C. McNeil, preceded Charles in death. His wife, Edna, established this fund in loving memory of her husband and late son, William.

William C. McNeil earned his Ph.D in history in 1968. He was a professor of history at Barnard College of Columbia University in New York until his death in 1993. He and his wife Victoria had two children Emily and Nathan.

J. Herman and Jean Kaye Swartz Graduate Fellowship

J. Herman Swartz was born in Spokane, WA on March 20, 1915 and passed away on January 10, 1996. He is survived by his wife of 53 years, Jean Kaye Swartz. Mr. Swartz earned his BS in Bacteriology in 1938 and an MS in Bacteriology in 1939 from Washington State College.

Mr. Swartz served in the medical corps for the Air Force from 1942 to 1945, during which he was the Chief of Laboratory at the station hospital on the island of Corsica. After the war, he graduated from Central Washington University with a BA in education. He was an instructor at Ohio Institute of Medical Technology in Cleveland, OH and later an assistant professor of Biology at Pacific University. The Swartzs moved to Spokane in 1953 and soon purchased Triangle Nut House, a nut

roasting and distributing company. Mr. Swartz also helped found the Polar Cold Storage Company.

Mr. Swartz served on the boards of Eastern Washington University Foundation, Deaconess Hospital Foundation, and the Spokane Central Lions Foundation. From 1993–1995, Mr. Swartz was a volunteer researcher at EWU working with dental hygienists studying dental bacteria.

Smoot Hill Graduate Student Research Fund

The Smoot Hill Graduate Student Research Fund was established by Dr. George Hudson, a member of the faculty, curator of the Connor Museum, and Supervisor of the Smoot Hill Preserve for Biological study. Awards are made for floristic and faunistic studies conducted at Smoot Hill. Grant recipients can receive up to two summer months of support at the rate of a half-time research assistant.

Student Research Endowment in Zoology

This award was established by a donation from the estate of Charles J. and June C. Campbell to fund student research in Zoology. Charles received his BS in Zoology from WSU in 1938. Although preference is given to undergraduates, SBS graduate students are also eligible for this award to support their research.