

# Graduate Student Handbook

Western Washington University

Department of Biology

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This handbook is a rich informational resource to help guide you through the graduate program in Biology. You are likely to have a lot of questions as you proceed through the program. For example, what is a Thesis Committee? How does one form the Thesis Committee? What are the expectations and caveats of being a Teaching Assistant? What departmental resources are available? How does one locate and obtain outside funding sources? When and how does one meet requirements and complete all the paperwork required by the Graduate School? These questions and many more are answered in this handbook.

For easy access to the forms and websites described in this handbook, use the online version of the handbook, located on the Biology Graduate Program [webpage](http://www.biol.wvu.edu/biology/graduateprogram/gradimages/gradprog%20handbook.pdf) (<http://www.biol.wvu.edu/biology/graduateprogram/gradimages/gradprog%20handbook.pdf>). You should be attentive to departmental and graduate school timelines and deadlines for graduate students. Be sure to periodically check the websites for updates on deadlines.

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## 1.1 Program Overview

### 1.1.1 Graduate Education

The primary goal of our master's program is to provide you with a research experience that develops the background and skills needed for you to thrive in a variety of professional careers in biology. To achieve this goal, you will undertake coursework and research that is aligned with your interests and the expertise of your advisor.

### 1.1.2 Research

The thesis project is the cornerstone of the MS degree, and is intended to be a meaningful project that advances a biology discipline. Under the guidance of your Thesis Committee, you will develop a thesis project. The department has an active research environment that spans many biological fields (e.g., cell biology, developmental biology, ecology, evolution, genetics, and marine biology), spatial scales from molecules to ecosystems, and habitats from marine to montane.

### 1.1.3 Coursework

As a graduate student in Biology, you must take several courses comprising a core curriculum that

will help build your abilities to function as an independent scientist. In addition to these required core courses, you can select from an array of topical courses in Biology and other departments (e.g., Chemistry, Environmental Science, Geology) to broaden your conceptual knowledge.

### 1.1.4 Departmental Commitment

The department is committed to providing you with an excellent experiential education, enabling you to become a well-trained biologist.

### 1.1.5 Departmental Information

For general and contact information, please visit the Biology Department [website](#).

## 1.2 Timeline

The timeline below (Figure 1.1) provides a quick reference for important dates and deadlines, as well as suggested targets for completing specific stages of your graduate studies. Specific deadlines relating to the final quarter are available on the Graduate School's [website](#).

Example Schedule for Completion of M.S. Biology Degree within 2 Years

	Fall			Winter			Spring			Summer			Fall			Winter			Spring			
	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late	
Meet with Thesis Advisor																						
Register for Classes																						
Put Together Course Approval Committee																						
Course Approval Committee Meeting																						
File Plan of Study																						
Investigate Funding Sources																						
Apply for Funding																						
Thesis Topic Approval meeting																						
Write Thesis Proposal																						
Thesis Proposal Approval meeting																						
Advance to Candidacy																						
Submit Thesis Topic Approval																						
Register for 690 Credits																						
Write Thesis Intro																						
Write Thesis Methods																						
Present Research Plans in Biol. 525																						
Collect & Enter Data																						
Statistical Analyses																						
Thesis Committee Meeting (taking stock)																						
Revise Intro																						
Revise Methods																						
Write/revise Results Section																						
Thesis Committee Meeting (review results)																						
Write/revise Discussion																						
Final Draft to Advisor																						
Register for 699 Credits (if needed)																						
Defense Copy to Committee																						
Apply for Master's Degree																						
Schedule Thesis Seminar & Defense																						
Thesis Seminar																						
Defense																						
Revisions																						
Submit Degree Recommendation																						
Get Signatures & Order Copies																						
Submit Bound Copies																						
Graduation																						

**Note:** Time ranges indicated by shaded regions are approximate - the time required and ideal schedule will likely vary between grad students depending on factors such as plan of study, type of research project, etc. Writing a thesis involves a considerable amount of time and effort. Anticipate working through a *minimum of four drafts of each section* with your advisor, and planning on the time necessary for this process.

Figure 1.1: Timeline.

## 1.3 Roles and Responsibilities

### 1.3.1 Guidelines for Graduate Students

You should recognize your own role in the program, and proactively seek advice and support during your graduate program.

Graduate students should:

- quickly become familiar with the Biology Graduate Handbook, and department and university policies pertaining to graduate students

(e.g., qualifying for TAs, qualifying for financial aid, advancing to candidacy, scheduling the thesis defense, formatting the thesis).

- be proactive in setting up committee meetings, planning research, writing the proposal, collecting data, conducting analyses, and writing the thesis.
- be aware of all deadlines and complete required university paperwork before posted deadlines.
- maintain frequent and open communication



with the advisor, committee members and outside sources, if appropriate.

- meet frequently, as needed (weekly to monthly) to discuss coursework, progress on proposal, grants/funding, fieldwork, data analysis, and preparation of the thesis.
- inform advisors in advance about extended periods of reduced availability or complete unavailability, and make plans for how to communicate during such absences.
- provide a short update on thesis progress on a quarterly basis to advisor
- develop a timeline in consultation with the thesis advisor and the Thesis Committee.
- discuss and set clear expectations for student and faculty responsibilities regarding response times and turn-around on drafts, proposals, thesis sections, and presentations. Give the advisor sufficient time to review materials before deadlines.
- seek the advice of experienced graduate students, and offer advice to fellow grad students.
- take the initiative to research alternate ideas and methods, as thesis research progresses.
- conform to professional standards of honesty in all aspects of the work, including accuracy and integrity of the data, and acknowledgment of the assistance and materials provided by others.
- obtain appropriate permissions for research on human subjects or live vertebrates.
- provide the thesis advisor with a complete data set and copies of lab and field notebooks from the thesis research.
- schedule a committee meeting, and meet with the committee every quarter.

### 1.3.2 Guidelines for Thesis Advisors

Advisors serve as intellectual and professional mentors to their graduate students. This role includes advisement and support in the following areas: course and degree requirements at WWU, the research thesis, and development of professional skills required in biology (research, writing, communication, professional integrity). These responsibilities are described for the following roles: advisement, mentorship, and support for research activities, thesis preparation, and post-graduate efforts.

#### Advisement

Advisors should:

- be familiar with the Biology Graduate Handbook, general university policies pertaining to graduate students, and willing to facilitate finding out relevant information through the Graduate Advisor, Graduate Committee, and other university resources.
- be available to students before the start of the first quarter to give advice on class choices and to suggest some classes that are appropriate and useful, before first Fall registration.
- provide guidance on selecting Thesis Committee members.
- lead (chair) all Thesis Committee meetings.
- oversee the selection of courses, and the development of a plan of study (with student and committee input). Monitor the student's progress of their coursework and completion of the plan of study.
- oversee the development of the student's thesis proposal.
- provide training and resources to help student's complete their thesis research.
- inform and provide students with appropriate advice when their performance or lack of progress towards the degree is of concern.

- inform students in advance about extended periods of reduced availability or complete unavailability, and make plans for how to communicate and provide support during such absences.
- train students in techniques needed for their thesis research.

### **Mentorship**

Advisors should:

- be receptive and responsive to the needs of the graduate student.
- be available for one-on-one meetings throughout the student's studies, and notify the student of extended periods of absence.
- provide a safe and supportive atmosphere for meetings and discussions, including being open to discuss any problems in the working relationship and to make accommodations.
- encourage students to interact with committee members and provide opportunities to meet and interact with scientific colleagues.
- attend, if possible, all research-related presentations the student gives (including in Biol. 525).
- promote the achievements of the graduate student, including nominating the student for TA or research awards when appropriate.
- discuss the student's career goals, and help them develop toward those goals, including post-graduate goals.
- be the primary spokesperson for inquiries related to research projects in the lab (e.g., newspaper reporters).

### **Research Support**

Advisors should:

- guide the student in selecting a project of reasonable scope for a 2 year thesis, advise in the design of the project, and help keep the thesis project to a manageable size and scope in relation to funding and resources.
- provide appropriate access to resources (laboratory space, equipment, materials and supplies, reagents, computers, access to software) to support the student's research.
- have a fair understanding of the skills and resources (financial and otherwise) necessary to complete a thesis project, OR help the student research some of these details in their first year.
- communicate opportunities for funding for student thesis research and write letters of support for funding requests.
- make sure that student obtains appropriate permissions for research on human subjects or live vertebrates, including collection permits.
- accompany students on selected field trips, at least once at the beginning of the field season and possibly again later on, to help answer questions, problem-solve on the spot, and assess the feasibility and safety of field methods.
- provide regular opportunities for the lab to meet, collaborate, discuss literature and questions, and problem-solve.
- be open to alternate ideas and methods.
- ensure there is a contingency plan, in the event that the original thesis topic doesn't work.
- be responsible for ensuring the student's research is accurate, valid, and conforms to the highest professional standards.

### **Thesis Support**

Advisors should:

- provide timely, constructive and critical feedback on drafts of the proposal,

funding requests, the thesis, and any papers/presentations from the thesis research.

- return thesis materials to students in a timely manner (preferably within 2 weeks). This may involve setting a schedule for submission and efficient turn-around time for sections and drafts of thesis-related materials (drafts, grant proposals, etc.).
- review drafts of individual sections of a thesis, as well as complete copies.
- communicate expectations about publishing and format of final thesis draft.
- attend graduate student seminars.

#### Post-graduate Support

Advisors should:

- continue to promote and advocate for the graduate student.
- write letters of recommendation.
- help publish research results, if appropriate.

#### 1.3.3 Guidelines for Committee Members

Committee members should:

- be available for one-on-one advisory meetings.
- attend committee meetings and research-related presentations (e.g., Biol. 525).
- guide selection of a research project that is of reasonable scope for a 2-year thesis.
- provided additional access to resources (e.g., laboratory space, equipment, materials, and supplies, reagents, computers, software, etc.).
- communicate opportunities for funding the thesis research and contribute letters of support when requested.

- help develop a contingency plan for the thesis.
- return thesis drafts in a timely manner (2 weeks).

#### 1.3.4 Special Guidelines for SPMC Coadvising

The responsibilities of the Thesis Advisor for MESP Biology students are further subdivided if the graduate student conducts research under the guidance of an SPMC marine scientist with adjunct status in the department. For these students, there are two advisors with shared responsibilities: the MESP Faculty Advisor (a Biology Dept. faculty member of the Graduate Faculty) and the MESP Research Advisor (SPMC marine scientist). Both serve as members of the Thesis Committee, with the Faculty Advisor serving as Thesis Committee Chair.

Selection of MESP Faculty Advisor: If a SPMC marine scientist is willing to advise an MESP applicant, the marine scientist must find a Biology faculty member willing to co-advise the applicant for admission to the Graduate Program.

The MESP Research Advisor has shared responsibility for the activities listed under Advisement, and primary responsibility for the activities associated with development and completion of a Masters thesis project (listed under Mentorship, Research Support, and Thesis and Post-graduate Support).

The MESP Faculty Advisor is responsible for coordinating with the MESP Research Advisor to meet the guidelines listed under Advisement. The Faculty Advisor contributes as needed to the other four categories (Mentorship, Research Support, Thesis Support, and Post-graduate Support). In addition, the Faculty Advisor is expected to guide the thesis through completion if necessary.

#### 1.3.5 Guidelines for Graduate Student Representatives

- Send occasional emails each quarter, sharing pertinent information from committee meetings, reminders about dept potlucks, etc, and soliciting grad student thoughts, concerns, etc.

to be relayed to grad committee. These emails are sent to grad@biol.wvu.edu, all faculty committee members, and the Administrative Service Manager.

- Assist in organizing and promoting annual grad-faculty-staff events, such as the fall and spring potlucks, and annual talent show (typically end of year).
- Organize the voting of the graduate-student invited speaker, and provide the name and contact information of the selected speaker to the Department Chair.
- Organize, promote, and facilitate the Annual Graduate Student Program Review at the end of the year (May). Find a time that works for all (or as many as possible) graduate students, talk to the Chair of Biology about ordering pizza, and reserve BI 415 for 2+ hrs.
- Review documents from previous years. Come up with important points to review (i.e., find out if progress has been made).
- Create and distribute an agenda for the meeting, including both previous issues and new ones (solicit ideas from other students). Be aware that meetings like this can degenerate into negative story-telling. So, it is important to use the agenda and facilitate in such a way that opinions and thoughts of all parties are heard, and everyone leaves feeling that their time was well spent. From initial email until the actual meeting, it is important to convey to all students that the meeting is confidential, and all meeting minutes and documents passed on to the Graduate Program Advisor will preserve anonymity. Individuals with very specific problems or grievances should be referred to Graduate Program Advisor or Department Chair. Scrupulous details should be recorded during the meeting, and a summary document created for the Graduate Program Advisor, addressing student opinions and thoughts on each of the topics covered at the meeting. This meeting is how changes get made!

- Graduate representative elections - each fall, one representative (generally a second year) should choose to remain on the committee, and 3 new representatives should be elected (2 first years and 1 second year). Send an email requesting nominations, and if more people volunteer than positions are available for, hold elections. If possible, have at least one meeting at which new student representatives overlap with outgoing representatives.
- Add to or edit this document as the position and responsibilities evolve, and pass on to Grad Program Advisor.

## 1.4 Conflict Resolution

In the rare event of a personal conflict with WWU faculty, staff, or students see Appendix A for helpful advice to resolve the conflict.

## 1.5 General Resources

### 1.5.1 Office Staff

The office staff provide assistance for email, office space, teaching, budgetary, and registration-related questions. See Section 7.4.1 for more information.

### 1.5.2 Stockroom Staff

The stockroom staff provide support for certain teaching and research-related needs of graduate students. See section 7.4.1 for more information.

### 1.5.3 Keys

Go to the stockroom [webpage](#) and open the Key Request Form. You will need a key to your advisor's lab. Follow the instructions on the form to obtain your keys. There is \$10 deposit for each key you request. At end of two years you will need to renew your key deposit.

### 1.5.4 Mailboxes, Mail Pick-up and Delivery

Each Biology Department graduate student has a mailbox located in BI 315. Please check your mailbox regularly, as university-related business and student assignments will be placed in your box.

Outgoing WWU related mail (on-campus and off-campus delivery) may be brought to the Biology office (BI 315).

Off-campus university-related mail should be placed in the blue Mail Services mailbag located below the bank of mailboxes. The mailroom will provide postage.

Campus mail envelopes are available for on-campus mail. Please note the person, department and proper mailstop on the envelope and place it in the black receptacle labeled "On Campus Mail" situated below the bank of mailboxes. Empty envelopes can be found under the bank of mailboxes and a list of mailstops is posted on the wall above the "On Campus Mail" receptacle.

WWU mailroom personnel pick up outgoing mail and deliver incoming (off-campus) mail once a day at approximately 10:30 a.m., Monday through Friday. Intercampus mail is delivered by Mail Services after 1 p.m.

*WWU Mail Services is for WWU related business only. Do not use WWU Mail Service for personal mail. Please take your personal mail to the mailbox in front of the Viking Union.*

### 1.5.5 FAX

There is a fax machine in the Biology Department office and the fax number is (360) 650-3148. The fax machine should be used for business purposes only. If a fax needs to be sent long distance, please see Mary Ann Merrill in the department office. If a fax is received for you, office personnel will place it in your mailbox.

### 1.5.6 Other Support Services

**Scientific Technical Services** features an electronics shop, machine/wood shop, and instrumen-

tation center, all of which are available to support graduate student research. For more information visit their [website](#).

**Research and Sponsored Programs** offers financial support for graduate student research, and submits grant proposals to extramural agencies on behalf of faculty and students. For more information visit their [website](#).

**The Graduate School** provides funding to support graduate student travel to give presentations at meetings and conferences, via Ross Travel Grants. More information on the Ross Travel Grants visit this [website](#).

**The Writing Center** provides advice for students struggling with their writing. For more information visit their [website](#).

**The Student Technology Center** provides assistance with specific difficulties with software packages. For more information visit their [website](#).

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## Thesis Committee

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### 2.1 Function

The Thesis Committee functions to:

- Guide and oversee your planned coursework.
- Evaluate and approve your proposed thesis topic.
- Give advice during the research and writing of your Master's thesis.
- Conduct the oral examination of your formal thesis defense.
- Approve the thesis submitted to the Graduate School.

In general, your Course Approval Committee (see section 2.4) will be the same as your Thesis Committee, but it doesn't have to be the same.

### 2.2 Composition

The Thesis Committee is composed of three or more members.

- The thesis advisor, who must be ten-year track faculty from Biology.

- At least two other committee members from the University faculty, one of whom must be Biology Graduate faculty.

In some cases, co-advisors are assigned (Marine and Estuarine Science Program). You may select additional committee members from inside or outside of the University, though certain restrictions apply. For a complete explanation of committee member eligibility refer to the Graduate School's [thesis guidelines](#). Your thesis advisor acts as the chair of your Thesis Committee and is your primary source of guidance and counsel. You select the additional Thesis Committee members in consultation with your thesis advisor. The Thesis Committee must be approved by the Biology Graduate Program Advisor and the Biology Department Chair before it is appointed by the Dean of the Graduate School. This approval takes place with the submission of the Thesis Topic Approval Card, which you can find at the Graduate School's [website](#). Note that the Thesis Committee can, but need not, have the same members as the Course Approval Committee (see Section 2.4).

## 2.3 Establishing a Thesis Committee

Your thesis advisor was assigned when you were accepted into the Biology Graduate Program<sup>1</sup>. The rest of your committee should be selected with the assistance of your thesis advisor during your first quarter at Western. When choosing potential committee members, you should consider faculty with expertise in areas related to the proposed research. Once several potential committee members have been identified, you should contact each potential committee member and arrange a time to meet and discuss that person's potential availability and willingness to serve in the context of your proposed research plan. The goal of this meeting is to determine whether the committee member can provide the time and skills needed to aid in the success of your proposed research. Think of these initial meetings as interviews - you can make a final decision after you've reflected on the merits of having different faculty on your committee. In seeking potential committee members, it is also a good idea to chat with current graduate students about what it is like to work closely with a faculty member.

Sample questions about potential Thesis Committee members that a beginning graduate student could ask the thesis advisor and other graduate students<sup>2</sup> include:

- What role is the individual likely to take in the development of the project?
- Does the individual appear have the available time, particularly when it is most needed by the graduate student, over the next two years?
- Does the potential committee member provide thoughtful, critical, and supportive guidance?

<sup>1</sup>Refer to your initial acceptance letter.

<sup>2</sup>Particularly those who work with the potential committee member.

## 2.4 Initial Meeting with Course Approval Committee

After you have established a Course Approval Committee (generally, but not necessarily the same as your Thesis Committee), you will need to convene an initial, hour-long meeting, which all committee members must attend. This initial meeting must occur before the end of the first academic quarter. The first item on the Course Approval Committee's agenda will be to discuss your background and preparation related to:

- Departmental academic standards for entering graduate students.
- The proposed coursework (i.e., Plan of Study, see Section 3).
- Advancement to candidacy (see Section 4.2).
- The proposed research project.

*Prior to the first meeting*, you should provide your Course Approval Committee with a list of relevant upper-division courses already taken, and 400-level and graduate courses that you propose to take.

Your Course Approval Committee will evaluate your academic preparedness, consider the courses needed to facilitate your research interests, and evaluate your proposed Plan of Study. At this meeting your proposed Plan of Study (i.e. required coursework) will be completed and approved (see Section 3).

This initial meeting and the creation of a Plan of Study should be done as early as possible. We recommend that incoming students discuss course options and a general plan with their advisor *before* registering for the fall quarter of their first year. The Plan of Study can be amended later with the approval of your Thesis Committee once that committee is assembled, and the approval of the graduate program advisor and the Graduate School. This strategy will minimize the potential for missing out on important classes that may only be offered in the fall every other year.

## 2.5 Subsequent Meetings with Thesis Committee

All graduate students are required to have regular committee meetings, following the schedule outlined below.

### Year 1

**Fall** - Meet to discuss plan of study, to be signed by the Course Approval Committee

**Winter** - Meet to discuss thesis topic (approval indicated by signatures of Thesis Committee) and to begin proposal development. Students should bring to this meeting a bulleted list of information about their study system, questions of interest, and methods to be used.

**Spring** - Meet to have proposal approved (indicated by Thesis Committee signature). Proposal guidelines, listed in Section 4.4.1, will be discussed in Biol. 501 (see Section 3.1 for description of this course).

### Year 2

**Fall** - Meet with Thesis Committee to take stock of progress to date, and to plan the remaining analyses and develop a plan for finishing the thesis.

**Winter** - Review results, discuss with Thesis Committee how best to integrate those results, and consider whether additional analyses are needed.

### Year 3 (if necessary)

Follow the schedule outlined under year 2.

The purpose of these requirements is to ensure that you are getting frequent feedback from your Thesis Committee to allow you to finish your degree in a timely fashion. Thus, you should follow the above schedule to ensure you make suitable progress toward your degree. A record of these meetings will be kept in your departmental file. In some cases, like plan of study approval, thesis topic

approval, and proposal approval, the signatures of the thesis members on the relevant document will be the record of when a particular meeting was held.

Note that you should view these requirements as the minimum frequency with which you should meet with your committee. The Biology Department encourages you to schedule additional committee meetings, and to meet individually with committee members (as well as other faculty with relevant expertise) to address issues for which you need their advice.

## 2.6 Changes in Committee Members

The assignment of your Thesis Advisor and Thesis Committee is generally viewed as permanent. However, unusual circumstances may arise that make a change necessary. As soon as any concerns arise, and before making any decisions regarding changes in committee members or thesis advisor, you should meet with the Graduate Program Advisor, the Biology Department Chair, or both, and submit the changes to the graduate school.



### 3.1 Course Requirements

To be eligible for a master's degree, you must have completed the credit and course requirements shown in Figure 3.1. Eight credits is the minimum for full-time status.

The core graduate curriculum in the Biology Department is composed of three courses, as well as a minimum of 12 credits of Thesis Research.

**Biol 501 (Fundamentals of Biological Research):**

An introduction to developing and writing research proposals, obtaining funding, and conducting research in the biological sciences. You are required to take this course Winter of your first year.

**Biol 525 (Research Mentorship):** A seminar-style course to discuss research methods and how to troubleshoot research problems across disciplines, specifically those related to each student's thesis research. You are required to take this course both Spring and Winter of your first and second year, for a total of 4 credits (1 credit per quarter).

**Biol 598 (Essentials of Biology Graduate Studies):**

An overview of department resources, guidelines for navigating the Biology MS in a timely fashion, and workshops for developing skills

in teaching and giving presentations in the biological sciences. You are required to take this course Fall of your first year.

**Biol 690 (Thesis Research):** To register for thesis credits, you must be advanced to candidacy (see Section 4.2). A minimum of 12 credits of Biol 690 are required for graduation, but you can take up to 36 credits of Biol 690, of which up to 21 can count toward the 45 credit degree.

### 3.2 Plan of Study

The "Plan of Study" lists the coursework that will fulfill the above requirements. You will fill out the Plan of Study form, which can be found [here](#), after your Course Approval Committee approves the planned coursework at the your initial committee meeting (see Section 2.4). After obtaining signatures from your Thesis Advisor, Course Approval Committee members, and the Biology Graduate Program Advisor, submit the Plan to the Graduate Dean for approval.

The Plan of Study may be amended as necessary at your request with the approval of the Thesis Advisor, Thesis Committee, and Biology Graduate Program Advisor, with final approval granted by the Graduate Dean. The form can be found [here](#).

<b><u>Biology Program Courses</u></b>		<b><u>Credits</u></b>
Biol 501	Fundamentals of Biological Research	3
Biol 525	Research Mentorship	1 x 4 qtrs
Biol 598	Essentials of Biology Graduate Studies	2
Biol 690	Thesis Research	12 - 36
	Electives*	15 (minimum)
	<b>Total Credit Hours Earned**</b>	<b>45 (minimum)</b>

\* - May include up to 10 credits of 400-level courses

\*\* - At least 11 credits must be Biology Department courses, not counting Biol 690

<b><u>MESP Program Courses</u></b>		<b><u>Credits</u></b>
Biol 501	Fundamentals of Biological Research	3
Biol 505	Special Topics in Marine Science	1
Biol 525	Research Mentorship	1 x 4 qtrs
Biol 598	Essentials of Biology Graduate Studies	2
Biol 690	Thesis Research	12 -36
	Electives*	14 (minimum)
	<b>Total Credit Hours Earned</b>	<b>45 (minimum)</b>

\* - May include up to 10 credits of 400-level courses

Figure 3.1: Course requirements.

### 3.3 Choosing Courses

#### 3.3.1 Initial Quarter

You will register for classes based on guidance received from your thesis advisor prior to the start of the quarter.

#### 3.3.2 Subsequent Quarters

You will follow the proposed Plan of Study as decided upon by you and your Course Approval Committee.

### 3.4 Deficiencies in Past Coursework

Occasionally, the Biology Department Graduate Committee notes deficiencies in an entering graduate student's academic preparation, and recommends that the student take specific courses at Western to ensure a breadth of knowledge in contemporary biology. These potential deficiencies, if any exist, are listed in your letter of offer. The Course Approval Committee should weigh the recommendations entered in the student's file by the Graduate Committee and decide on a course of

action. The Course Approval Committee's directions with regard to making up course deficiencies are binding. Any make-up courses that are below 400-level must be taken in addition to coursework in the Plan of Study. Furthermore, any makeup coursework that is below 400-level does not count toward financial aid. If circumstances encountered later in the program warrant it, the student can petition the Graduate Committee to reconsider any course requirements stipulated by the Course Approval Committee. Remedying all course deficiencies is necessary to Advance to Candidacy (see [Section 4.2](#)).

The M.S. degree at WWU is a two-phase program. The student is admitted with graduate degree status (first phase), and then advanced to candidacy (second phase).

## 4.1 Graduate Degree Status

Students admitted to the Biology Graduate Program are granted graduate degree status. Under some circumstances a student is accepted provisionally. These latter students must fulfill any requirements set forth by the Graduate Committee (at the time of admission) before they are granted graduate degree status. During the first phase, students should fulfill the requirements to Advance to Candidacy (see Section 4.2). During this stage the student is not officially a candidate for the M.S. degree.

## 4.2 Advancement to Candidacy

Advancement to Candidacy is a prerequisite to earning the Master's degree. To provide you with adequate time to complete your research, you must Advance to Candidacy by the end of the second quarter after admission. After you have advanced to candidacy, your primary responsibility is to complete the approved thesis research.

Requirements to advance to candidacy are the following:

### Fall

- Establish the Thesis Committee
- Submit a completed "Graduate Plan of Study" form to the Graduate School. You can find the form online [here](#) (see Section 3.2 for more details).
- Satisfy any academic deficiencies listed in your letter offering admission.
- Complete at least 12 credit hours<sup>1</sup> of graduate study with a cumulative GPA  $\geq 3.0$ <sup>2</sup>.

### Winter

- Have no incomplete (K) grades
- If admitted provisionally, you must have attained graduate degree status
- Submit an approved Thesis Topic Approval card (see Section 4.3)

Advancement to candidacy will occur automatically once all of the above requirements are met.

<sup>1</sup>Fifteen credit hours if you have provisional admit status.

<sup>2</sup>More than 10 credits of C+ or lower removes a student from eligibility to remain in the graduate program.

### 4.3 Thesis Topic Approval Card

Before you can get your thesis topic approved, you need to have a Thesis Committee meeting (winter quarter of your first year), in which you define the scope of your thesis research. To complete the card, fill out the online form [here](#), you will need to provide the title of your thesis. This title is not binding and can be altered on the actual thesis. It is your responsibility to have this card signed by all members of the Thesis Committee, the Biology Graduate Program Advisor, and the Biology Department Chair. You then submit the card to the Graduate School, where it is kept on file.

It is important to complete the Thesis Topic Approval Card shortly after you have completed the other requirements for being Advanced to Candidacy, because you cannot register for research credit (Biol. 690) until the Graduate School receives this card. In addition, the Graduate School will not accept a thesis that has not been preceded by a Thesis Topic Approval card.

### 4.4 Thesis Proposal Approval

During winter or spring quarter of your first year, you need to schedule another Thesis Committee meeting, during which you will discuss your formal thesis proposal. This proposal, developed during the previous quarter, must provide sufficient detail on the context, hypotheses, and proposed methods to allow your Thesis Committee to assess the following.

- Whether your research is likely to produce meaningful results,
- Whether it is of the appropriate scope for a MS thesis.
- Whether the appropriate resources are available to complete the thesis project.

Once your Thesis Committee has approved your proposal, you must give a copy of the approved (signed) proposal to the Graduate Program Coordinator.

#### 4.4.1 Thesis Proposal Guidelines

Below are suggested guidelines for a thesis proposal.

- 50% of the proposal should be Introduction, Overview and Background, and Question and Hypotheses.
- 50% should be Methods, Timeline, Possible outcome and interpretations, and Contingency plans.
- Length (excluding the project summary, bibliography, tables and figures, and budget, supplies, and resources):
  - Minimum of 10 double spaced pages.
  - Maximum of 15 double spaced pages.
  - If the proposal exceeds the maximum, then there is likely a problem (e.g., you have proposed too much work).

##### *Proposal Outline*

Project Summary (typically < 1 page)

Introduction, Overview and Background

Overview

Background

Experimental Approach

Questions and hypotheses (can be bulleted)

Methods

Study site(s)

Experimental or sampling design

Measurements

Stats

Expected Results and Interpretations

Possible outcomes and interpretations

Contingency plans

Timeline

Bibliography

Budget and needed resources

University resources (e.g. instrumentation, field equipment, use of Scientific Technical Services, SPMC facilities, boat support, etc).

Indication of usage (e.g. 6 months of one piece of equipment)

Expendable supplies

Other

The Graduate School's [website](#) provides helpful and more detailed information on many of the topics discussed Section 4.

### 5.1 Purpose of the Thesis

A thesis is the culmination of your graduate work at WWU. The purpose of the thesis is to provide you with the experience of designing and conducting original and independent research, carrying out a research project, and reporting on the investigation in accordance with the accepted norms of the scientific discipline. Indeed, the purpose of the M.S. degree is to educate, guide, and train you to be independent scientific investigator.

### 5.2 Choosing a Thesis Research Project

As a graduate student, you should pursue a project that is of interest to you, under the guidance of your thesis advisor and Thesis Committee. Their insight regarding the originality, importance, and feasibility of different research projects will help you define the scope of your thesis project. The help of the Committee during the selection and planning of a thesis research project can make a huge difference in developing a successful thesis project that can be completed in a timely manner.

The sooner you start planning your thesis project, the better. An early start will give you every op-

portunity to define a rewarding project of reasonable scope. Also, by beginning the planning process right away, you will have a better chance to meet deadlines for internal or external funding for your research (see Section 8), and may even be able to start collecting data sooner. Note that two of the core courses in the graduate curriculum (501 and 525) will provide opportunities to hone your research ideas.

Your general research topic should be presented to the Thesis Committee at the time of the first meeting of that committee (second quarter of your first year). Do not initiate research involving human subjects or live vertebrates until permission has been received from the relevant oversight committee (Human Subjects Review Committee, for more information see their [website](#); Animal Care and Use Committee, for more information see their [website](#)). Prompts for these approvals are on the Thesis Topic Approval card (see Section 4.3). You should not seek signatures on this card until any and all relevant approval processes have been cleared. In addition, MESP students planning to conduct research at Shannon Point Marine Center will need to fill out an application for use of facilities before beginning the thesis research. You can obtain this application from SPMC's [web-page](#). Research requiring SPMC staff time, boat use, and SCUBA support should be planned and coordi-

nated with SPMC personnel in advance of final thesis topic approval.

During your second quarter, you will prepare a detailed thesis proposal following departmental guidelines (see Section 4.4.1). You must get the approval of this proposal from your Thesis Committee after meeting with them during the third quarter of your first year.

### 5.3 Biology 690–Thesis Research

You may register (online) for thesis credits, Biology 690, during the M.S. program, under the following restrictions:

- You cannot register for Biology 690 until you have Advanced to Candidacy (see Section 4.2) and have had your thesis topic approval card signed and accepted by the Graduate School (see Section 4.3).
- You must have a minimum of 12 hours of Biology 690 credit in the M.S. program, to complete a M.S. degree, but you may count up to 21 credits of Biology 690 toward the 45 credit total for the degree.
- All grades for Biology 690 are K (incomplete), until the thesis is defended. When the “Recommendation for Master’s Degree card” is signed after the thesis defense, the thesis advisor indicates on the card the 12+ hours of thesis credit and the grade (S or U). It is not necessary to complete a “K removal card.”

Many graduate students use Biology 690 credits to “fill out” the credits in their programs, and to maintain sufficient credits to qualify for financial assistance. If you receive Financial Aid, you should be mindful of the credit criteria used by the Financial Aid Office to evaluate eligibility; check with that office regarding these criteria and register for the credits necessary for maintaining financial aid status. See Sections 7.2.1, 8.1.2, and 8.1.3 regarding the minimum number of credits for which you must be enrolled to remain eligible for TAships, RAships, and

Graduate Work-Study. If you use Biology 690 credits for maintaining eligibility for funding, be mindful of the fact that you can only register for a maximum of 36 credits of Biology 690 during your time at WWU.

### 5.4 Writing the Thesis

Perhaps the most valuable advice the faculty can give a graduate student on writing a thesis is that it is more challenging and takes more time and effort than one would think. As a rule of thumb, the first complete draft of the thesis should be finished at least one quarter prior to the quarter planned for defense and graduation. Keep in mind that the final copy of the thesis must be submitted to the Graduate School about a month prior to the end of the quarter in which you expect to graduate.

Writing the thesis actually begins with the development of the thesis proposal, as the proposal may form the core of the Introduction and Methods sections of the thesis. You should begin writing the rest of the thesis as soon as you have obtained results. At that time, you can also revise the description of the Methods, if necessary. Also, if the thesis research takes on new directions from what was originally planned, you may need to substantially rewrite the Introduction<sup>1</sup>. You should plan on having multiple rounds of revisions as you work with your thesis advisor to hone a well-written thesis. Before beginning to write up the results, you should seek input from your Thesis Committee members on data analysis and how best to interpret your results.

Each thesis advisor has a particular style of writing, largely influenced by the conventions of his or her sub-discipline and the journals to which any manuscript(s) describing the thesis research are likely to be submitted. Although your thesis advisor will not try to force a particular style upon you, they will undoubtedly make many editorial changes and suggestions on drafts. You should view these suggestions in the spirit in which they are made, as part of the learning process that is intended to help you become an independent scientific investigator. Do

<sup>1</sup>You should also schedule a committee meeting to discuss these new directions.



not, however, expect your thesis advisor to write or rewrite your thesis, in whole or in part.

Each thesis must be formatted in accordance with the Graduate School's guidelines (see their [website](#) for a complete description of these specific guidelines). Past graduate students have compiled a list of helpful tips, which you can find at Bioogy's [website](#). Any of the standard type (font) styles are acceptable; Times Roman 12 pt is preferable. You and your thesis advisor are responsible for checking the final thesis before it is submitted to the Graduate School for the Graduate Dean's approval.

Reference citation, footnoting, and other technical aspects of all Biology Graduate Program theses must be according to CBE Style Manual 3rd or later edition (A.I.B.S., Washington, D.C.). In developing a writing style, you may want to consult some of the references listed below.

- Day, R. A. 1998. *How to Write and Publish a Scientific Paper*. 5th Greenwood Publishing Group, Inc., CT. 275 pp.
- Knisely, K., 2005. *Student Handbook for Writing in Biology*. 2nd ed., Sinauer Associates, Sunderland, MA.
- McMillan, V. E. 2001. *Writing Papers in the Biological Sciences*. 3rd ed. Bedford Books/St. Martin's Press, NY. 207 pp.
- Pechenik, J.A. 2004. *A Short Guide to Writing about Biology*. 5th edition. Pearson Ed. Inc., 302 pp.
- Penrose, A.M. and S.B. Katz. 2004. *Writing in the Sciences*. 2nd ed. Pearson Ed., Inc., 448 pp.
- Strunk, W., Jr. and E. B. White. 1979. *The Elements of Style*. 3rd ed. Macmillan Publishing Co., NY. 92 pp.
- Wilkinson, A. M. 1991. *The Scientist's Handbook for Writing Papers and Dissertations*. Prentice-Hall Advanced Reference Series, NJ. 522 pp.

## 5.5 Thesis Completion Procedure

As you near the completion of your M.S. degree, you must take a prescribed series of steps. The official deadlines for some of these steps vary from quarter to quarter, and are posted on the Graduate School [website](#). Below is a list of the steps and their approximate deadlines. Unless noted otherwise, on-line forms for each of these steps are available at the Graduate School's [website](#).

### Quarter before you intend to graduate

- Apply for Degree (submit online form [here](#)) by the last day of the quarter proceeding the quarter in which you intend to graduate. A diploma fee is assessed by the University at this time.
- Work with your advisor to revise thesis draft to acceptable form for committee review. You should complete a draft that is ready for your committee before the end of this quarter—at the very latest the first week of the following quarter.

### Quarter in which you intend to graduate

- Following advisor approval, the draft goes to committee members for review 2 weeks before a pre-defense meeting<sup>2</sup>.
- Pre-defense meeting<sup>3</sup>. The goal of this meeting is for the committee to discuss the draft thesis, suggest revisions, and help you bring the thesis into final form. It is not intended as a defense, but rather to answer the following questions:
  - Are there major issues with the thesis that need fixing?

<sup>2</sup>During this two week period, you should be working on your thesis seminar.

<sup>3</sup>In consultation with your advisor, you should schedule your pre-defense meeting and seminar/defense as soon as you have a reasonable estimate of time to completion. All involved must recognize, however, that some revisions to the schedule (e.g., rescheduling the defense for a later date) may be necessary depending on the feedback from the committee at the pre-defense meeting.

- If and when to schedule a defense, or to meet again. If only minor revisions are needed, you and your committee can move forward with scheduling a seminar and defense. If there are major issues, the committee can arrange to review any revisions at a second pre-defense meeting prior to scheduling the seminar and defense.
- You must incorporate revisions suggested by the committee under guidance of your thesis advisor. The amount of time taken for this depends on the extent of the revisions needed.
- Schedule your oral defense. At least 2 weeks before your defense submit the oral defense form to the Graduate School (submit online form [here](#)). The deadline for the oral defense form is typically four weeks into a quarter, but see the Graduate School's web site for specific dates. *The oral defense should be held after and within one week of the seminar.* In addition to submitting the oral defense form, reserve a room for your defense at the Biology office.
- Schedule your thesis seminar. Submit Thesis Seminar form to the Biology Department (due two weeks before the thesis seminar). This form is available in the Biology Department office. *The Thesis seminar should be held before and within one week of the defense.* See Section 5.6 for further guidelines regarding thesis seminars.
- Once your committee and advisor are satisfied that appropriate revisions have been incorporated and you have scheduled your thesis seminar and defense, the thesis is tabled in the Biology Office for review by faculty at least 1 week prior to the seminar.
- Give your thesis seminar (based on near-final tabled thesis). Seminars will be scheduled for 1.5 hours, with an anticipated 45-50 minute talk and the remaining time for questions.
- Defend your thesis. Given the pre-defense meeting in which issues with the thesis were

dealt with, during the defense committee members might focus on questions that assess your general knowledge of the discipline. If you pass the defense, the committee signs the electronic Degree Recommendation Form. If questions arise at the seminar, defense or in faculty comments on the tabled draft, then you, with guidance from your advisor, incorporate appropriate revisions before the committee and advisor sign the e-form.

- Submit final thesis to Graduate School. See the Graduate School's web site for the deadline for this step. Congratulations!

The Graduate School policy for credit enrollment and quarter of graduation is a bit convoluted. According to the official policy, one must take at least 2 credits the quarter of, or immediately prior to, the quarter of graduation (not counting summer quarter). For example, if you officially graduate in fall you do not need to register for any credit in fall. As long as you registered for at least two credits in the previous spring. So what happens if you plan to graduate in fall but do not meet the official deadlines? As long as you finish all your thesis related work (e.g., seminar, defense, revisions, submission of thesis for printing) BEFORE the end of fall quarter (the last day of finals week) you will technically graduate winter quarter, but still do not have to take any additional credits. However, if you are further delayed, and not finish until after finals week of fall quarter, this would no longer be true, and you would have to take at least 2 credits winter quarter.

## 5.6 Thesis Seminar

You must present a seminar on the results of your thesis research, following the guidelines below:

- Thesis seminars must be held on campus under the auspices of the Biology Department.
- Thesis seminars are announced as Biology Department seminars. Because time conflicts are common for lecture spaces, schedule early to

ensure getting a room with the technology that you need for your seminar. The office staff can help with room scheduling.

- Prior to presenting a thesis seminar, you should give at least one practice talk with at least one Thesis Committee member present, usually your thesis advisor. We strongly recommend getting abundant feedback from your thesis advisor about the content and presentation of the thesis seminar.

## 5.7 Thesis Defense

### 5.7.1 What the Thesis Defense Covers

You should discuss with your thesis advisor and committee the nature of the defense and prepare accordingly. The defense questions aim to assess the breadth of your understanding of the major biological subdiscipline that is the foundation of your thesis, and to determine whether you can place your project in a proper context and understand its significance. The Thesis Committee members typically confine their questioning to knowledge they believe is related to your thesis. This might include details about the thesis itself as well as questions about the broader context in which your work fits.

### 5.7.2 Graduate Council Representative

Depending on availability, the Graduate Dean tries to appoint a member of the Graduate Council or another suitable representative to attend the thesis defense. The Graduate Council Representative's role in the examination process is to act as a protector of your interests. The Representative is the judge of whether the exam was fairly conducted. If the Graduate Council Representative decides that the thesis defense was not fair, the defense is adjourned without decision, to be rescheduled at a later date. If the Representative decides that the thesis defense was fairly conducted, then the Thesis Committee members vote on whether or not the

candidate passes. The Graduate Council representative may have a few questions to ask you about the thesis.

In recent years, time pressures, the limited availability of Graduate Council members, and schedule conflicts, have meant that most Biology Department thesis defenses have not been attended by a Graduate Council Representative. In these cases, the thesis advisor asks the graduate student if he/she thinks the thesis defense was fairly conducted. However, if you prefer to have a representative attend the thesis defense, a request to either the Graduate Program Advisor or directly to the Graduate School will increase the likelihood of the presence of a Graduate Council representative at your thesis defense.

### 5.7.3 Passing or Failing the Thesis Defense

Once the thesis defense has concluded, the Thesis Committee members vote on: (1) whether you have passed the defense, and (2) whether your thesis is acceptable. The policy of the Biology Department states that these votes must be unanimous for a student to pass. If you pass the defense and your thesis is acceptable with minor revisions, then the Thesis Committee members will sign the Recommendation for Master's Degree form, found [here](#), and the signature pages. Your thesis advisor signs the form and signature pages after revisions requested by other committee members have been made.

If you do not pass the thesis defense, the Thesis Committee and you will schedule a second defense. If your thesis is not acceptable, the Thesis Committee and you will agree on a reasonable timetable for revising the thesis. If you subsequently pass the second exam and/or submit an acceptable revised thesis, then the Thesis Committee members sign the Recommendation for Master's Degree form and the signature pages. Again, your thesis advisor is the last member of the committee to sign the form and signature pages. You have two chances to pass the final examination.

Even if you pass the initial thesis defense, you will

Table 5.1: Sequence and timing of steps to graduate.

Steps	Event	When
1	Apply for graduation	Quarter before you expect to graduate
2	Complete thesis draft with advisor's input	Start of graduation quarter
3	Advisor-approved thesis to committee	At least two weeks before pre-defense meeting
4	Pre-defense meeting <sup>a</sup>	When scheduled
5	Schedule defense	At least two weeks before date of defense
6	Schedule thesis seminar, and table a copy of the thesis	At least one week before date of seminar; seminar must be before and within one week of defense (often is same day).
7	Seminar	When scheduled
8	Defense <sup>b</sup>	When scheduled
9	Signature pages completed	Following a successful defense
10	Degree recommendation form	Following a successful defense, and final revisions
11	Give thesis to Graduate School for approval	Upon completion of step 10
12	Pick up thesis from Graduate School	When ready
13	Copy and bind thesis	After step 12
14	Distribute copies of thesis	

<sup>a</sup> If major revisions are required, then back to step 1 or 2.

<sup>b</sup> The thesis oral defense form is available [here](#).

probably have to make final revisions to the thesis, based on issues raised by the Thesis Committee.

If you have pressing deadlines that require the thesis be completed and signed off by a specific time (e.g., foreign visas, Graduate School requirements for finishing within 5 years), it is your responsibility to be sure adequate time is allowed for revisions, including time for Committee Members to review the revised thesis before signing off. Revisions will be required until the thesis is acceptable. The Thesis Committee is under no obligation to approve the thesis before it satisfies departmental standards. If you feel that you may have difficulty reaching this goal because of advising difficulties, personal issues, or any other reason, you should initiate discussions immediately with your advisor, Committee, Graduate Program Advisor, or Department Chair (as appropriate) to resolve these issues before your deadline is imminent.

#### 5.7.4 Signature Pages

When you pass the thesis defense, your Thesis Committee members will sign the Recommendation for Master's Degree form (see Section 5.7.3), and several signature pages for the bound copies of the thesis. You should have your Thesis Committee members sign more than enough signature pages for the number of copies to be bound. Each bound copy should have a signature page, with original signatures. You should make sure that your thesis advisor has the recommendation card and the signature pages in his or her possession before the start of the defense.

### 5.8 Duplicating, Binding, and Depositing the Thesis

When the final *approved* copy of the thesis is ready, you must take it *unbound* to the Graduate School so that it can be checked for conformity to the requirements of the University. You should also take the appropriate number of original signed signature pages, equal to the number of copies to be bound, to the Graduate School. After Graduate School

approval of the thesis, the signature pages will be signed by the Graduate Dean.

Once the Graduate Dean has signed the signature pages, you will be notified by the Graduate School. Then you should deliver the thesis and the signed signature pages to Haggard Hall Copy Services for copying and binding. Specific information on the requirements for this process is posted at the Graduate School's Thesis Guidelines publication [website](#). Be sure to read this information.

#### 5.8.1 Binding

Binding shall be in dark blue. Lettering must include the thesis title and author's name, in gold. This done at Western Washington's copy services.

#### 5.8.2 Number of Copies

A minimum of four bound (hard cover) copies must be made:

- two copies, including one with original signatures, must be deposited with the Graduate Office (both copies are for the library, one for the archive collection and one for circulation)
- one copy is for the thesis chair
- one copy is for the student
- one copy is for the Biology Department
- for MESP students: one copy for Shannon Point Marine Center

Some students might want more than five copies, if they have arranged to provide a copy of the thesis to another party. For example, if you performed thesis research in a National Park or a National Forest for their research, it would be courteous to provide the agency with a bound copy of the thesis. Also, many graduate students have extra copies made for distribution to friends, parents, thesis committee members, and others who helped with the thesis. These additional copies can be inexpensively bound with a soft cover and plastic strip binding

at the same time the five hardbound copies are requested. There are also local and online companies that can copy and bind additional copies of your thesis.

### **5.8.3 Depositing the Thesis in the Graduate Office**

Deliver two bound copies of the thesis to the Graduate Office.

### **5.8.4 Cost of Binding**

The copy of your thesis for the Biology Department is paid for by the department by pro rating all costs for copying and binding, and then by paying the expense of one copy. For example, if you have 5 copies and pay \$45 for binding and \$20 for copying, the department will provide \$13 as reimbursement, and you will pay for the other copies. SPMC will also reimburse MESP students for the copy for Shannon Point Marine Center.

If the thesis is thick enough, the student's name should be put on the spine of the department copy. The date would be useful as well. The department will pay for this extra expense on the department copy only.

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## Thesis Style Guidelines

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These instructions represent the thesis style regulations as they apply to theses in the Biology Department. They are consistent with the Thesis Guidelines that are published by the Graduate School (see their [website](#)). That document should be obtained and used along with these guidelines in preparing your thesis.

The ultimate goal of your thesis work is the submission of one or more manuscripts to a peer-reviewed journal. The content and writing style of your thesis should therefore conform to the requirements of the target journal, though the formatting must conform to the requirements of the graduate school.

### 6.1 Sections of the Thesis

The thesis will be subdivided into sections and subsections according to those commonly found in biological journals. These sections are common in theses presented to the Biology Department: ABSTRACT, ACKNOWLEDGMENTS, TABLE OF CONTENTS, LIST OF FIGURES, LIST OF TABLES, INTRODUCTION, STUDY AREA (if relevant), METHODS, RESULTS, DISCUSSION, LITERATURE CITED.

Each copy of the thesis must have a one page abstract numbered with lower case Roman Numeral

iv (following the signature, authorization/copyright and title pages). The abstract will vary somewhat with the nature of the study, but it must provide a concrete statement of the problem, a brief description of methods, and the significant results and conclusions. The abstract page must include the thesis title and the author's name. Margins and spacing should be consistent with thesis text requirements. Because the abstract will be included with every copy of the thesis, an additional summary of the thesis work is unnecessary.

Examples of a signature page, authorization page, and title page are available in the Thesis Guidelines publication described above. You should ask your thesis advisor to show you a copy of a completed thesis, to answer questions regarding thesis formatting or organization, although sometimes these copies might contain inadvertent mistakes.

### 6.2 Headings and Subheadings

All headings and subheadings are to be printed in boldface type. The hierarchy of headings is as follows. Primary headings, used for the major sections of the thesis, are to be centered, all upper case, and boldface. Major sections of the thesis must begin on a new page. Do not refer to major sections as Chapter 1, Chapter 2, etc. Secondary headings used

for major topics within a section of the thesis are to be centered, lower case except for the initial character, and boldface. Secondary headings begin two lines (one double-space) below the primary heading or four lines (two double-spaces) below the end of the preceding text paragraph. Tertiary headings begin at the left margin, lower case except for the initial character, and boldface. Tertiary headings begin two lines below the secondary heading or four lines below the end of the preceding text paragraph. The text associated with either secondary or tertiary headings begins two lines before the heading. The use of fourth order headings is discouraged, but if these must be used they are to be indented as part of the paragraph, lower case except for the initial character, and boldface. A period separates this heading from the lead sentence of the paragraph.

The following example illustrates the proper use of headings and subheadings for Biology theses:

**METHODS**  
**Overstory litter**

Based on previous sampling of total leaf fall in the mixed hardwood forest type, nylon mesh bags...

**Understory litter**

I divided understories of both forest types according to growth forms of ...

**Herbaceous layer**

Two types of herbaceous plants grew in the study area and the methods for litter decomposition were...

**Annuals.** I collected litter from annual plants at monthly intervals during the growing season and...

**Perennials.** I collected litter from perennial plants only at the end of the growing season and...

## 6.3 Literature Citation Style

Literature citation styles should follow the accepted norms required for papers in journals in the field. For example, see the citation styles in *Cell*, *Ecology*,

*Evolution*, and *Genetics*. Note that citations for journal articles, books, software, and websites may differ slightly from one another. Be sure to use the standard style for each.

## 6.4 Tables and Figures

### 6.4.1 Tables

Tables must be numbered consecutively, with Arabic numerals, one table per page. The caption must be single spaced, and it should go above the body of the table. Footnotes associated with the table must go at the bottom. We discourage the use of tables numbered 1a, 1b, 1c, etc. Lines in the table may be used, according to the custom of you and your thesis advisor. Do not put tables in the text. Each table must be on its own page. Edit the data in tables rigorously; long lists of raw data should be eliminated. Never repeat the same data in a table and a figure. If either will suffice, a figure is preferable.

### 6.4.2 Figures

All figures must be numbered consecutively with Arabic numerals, one figure per page unless clearly related figures can be grouped on one page with one caption. The single spaced legend must go below the figure, or if there is not enough room, on a facing page such that it can be read while viewing the figure. In the text, references to figures may be made as Fig. 2, but on the figure caption the word "Figure" must be spelled out. We recognize that figures are handled differently in different aspects of the discipline, especially when photographic plates or drawings are involved. Limited groups of related illustrations (line drawings) may be included in the main body of the thesis as figures (as opposed to plates), with subdivisions a, b, c, etc. Plates are considered to be groups of illustrations located at the back of the thesis. As such they may be referred to as Plate 1, fig. 1; Plate 9, fig. 3; etc. Note the use of lower case for fig.



### 6.4.3 Lists of Tables and Figures

You are required to prepare a list of tables and a list of figures. These should be treated each on separate pages, and should follow immediately after the Table of Contents. These lists should contain each table or figure number, the caption exactly as on the table or figure, and the page number on which the table or figure can be located.

### 6.4.4 Arrangement of Tables and Figures for Examination

Check with the thesis advisor on how to arrange tables and figures when assembling the defense copies of the thesis. Some professors prefer to receive the copy with the entire text together at the front, followed by all the tables, and finally the figures. This is the form in which journal articles are submitted to an editor for publication; the advantage is that all the primary evidence (tables and figures) are collected in one place. Not everyone prefers this arrangement, however; many faculty like to have the tables and figures inserted in the correct order in the body of the thesis. The draft that will be checked by the Graduate Dean and then duplicated must have tables and figures in the correct order in the body of the thesis.

## 6.5 Other Guidelines

### 6.5.1 Acknowledgments

This section is optional, but recommended. Its purpose is to acknowledge those who contributed to the research. It is important, for example, to acknowledge the assistance of National Parks and Forests, State Agencies, and private citizens on whose land you worked, people who helped gather data and provided advice, and sources of funding. Acknowledgments should follow the abstract.

### 6.5.2 Spacing

Everything in the text must be double spaced, except that there will be two double-spaces between the last sentence of a paragraph and any heading or subheading. The entries under Literature Cited, captions of tables and figures, and bodies of tables are to be single spaced. Text in the body of a table may be double-spaced if it makes the table easier to comprehend, but the caption still must be single spaced.

### 6.5.3 Margins and Pagination

For details on margins and pagination, see the Thesis Guidelines on the Graduate School's [website](#).

### 6.5.4 Measurements

Use the metric system for all measurements, including tide heights, throughout the thesis. Common units of measurement in the metric system need not be followed by periods (eg, 2 mm, 3.5 cm, 6 km, 10.23 L).

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## Teaching Assistantships

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### 7.1 Overview

Teaching assistantships (TAships) are the most common way for Biology graduate students to fund their Masters degree. Graduate students assist professors in teaching classes and labs and receive a modest stipend and tuition waiver in exchange. Each year the Biology Department receives funding for TAships from the Graduate Dean and the College of Sciences and Technology. The number of positions fluctuates with enrollment in the Biology program, but recently it has been about 20 TA positions each year. Each position is for 20 hours per week (a “full-time TAship”). TAships are competitive, and not awarded on the basis of financial need. Therefore the best candidates are selected if the number of available positions is less than the number of students that request TAships. The Department Chair assigns the graduate TAs to specific teaching assignments, based on recommendations from the Graduate Committee Chair, Graduate Program Administrator, and input from course instructors and the faculty. The Graduate School Dean makes the formal award. See the selection criteria in Section 7.2.1. Due to unexpected events, TA assignments can change before a quarter starts. The Graduate Committee Chair will notify students when their assignment have changed to discuss the change and

solicit feedback.

A small number of biology courses are taught during the summer session, some of which need one or more graduate instructors, which are different from graduate TAs. Such summer session instructor positions are funded entirely by course tuition, and the Department Chair and course instructor assign summer instructors. The Graduate Committee is often asked to make recommendations for summer instructor awards, in which case it does so using the same selection criteria as used for academic year TA awards (see Section 7.2.1). The university does not consider the summer instructor position in the same category as an academic year TA.

As a graduate student, you are eligible for TAships to a maximum of 6 quarters while you are a graduate student at WWU. Research assistantships (RA), fellowships, and summer TAships are not counted toward the 6 quarter total. Eligible Biology Department graduate students get preference in TA appointments over graduate students from other Departments.

TAships awarded in the first year are subject to departmental review for renewal in the second year. Your assistantship may be canceled if you do not maintain a GPA of 3.0, fail to meet departmental expectations, or perform TA duties in an unsatisfactory manner (see Section 7.2.2). Usually, TAships for the

second year are awarded for the entire year, but in the event that there are concerns about the performance of an individual TA, that student might be awarded a TAship on a quarter-by-quarter basis. See Section 7.2.3 regarding the appeal process, should you be denied a TAship on the basis of your performance.

## 7.2 Eligibility, Selection, and Renewal

### 7.2.1 Process

To be eligible for a TAship, you must be enrolled for a minimum of 8 credits in the quarter(s) in which you have the TAship, unless you have completed all course credits in your Plan of Study (other than Biol. 525, Biol. 690), in which case, you must be enrolled for a minimum of 2 credits.

The faculty members of the Graduate Committee recommend TA awards to the Department Chair on the basis of these criteria:

- Application for a TAship. Typically filled out when you fill out your initial acceptable letter into the graduate program at WWU.
- For applicants with prior TA awards in this department, satisfactory performance as a TA, as gauged by fulfillment of the TA responsibilities described below.
- Knowledge of the course material and any prior experience in the discipline from teaching, courses or research experience.
- Availability of TAships.

### 7.2.2 TA Responsibilities and Criteria for Evaluation

As a TA, you will be responsible for teaching laboratory sections for a particular lower or upper division biology course. Teaching a laboratory course requires that you adequately prepare for the lab. In

addition, you should be proactive and help to improve the lab. However, be careful to balance your TA duties with other grad student responsibilities (e.g., course work and research).

The responsibilities and criteria listed below are considered collectively, and no single criterion overrides another or drives the decision-making process for whether a TAship will be renewed. Please talk with the Graduate Program Advisor and/or the Graduate Committee if you sense difficulties with any of these activities. They are here to help.

**Attending the lab meeting.** This is important even if you have taught the course previously. At the lab meeting the instructor will go through the lab exercise for the week and let you know of any last minute changes or equipment issues, safety concerns, and potential problems. The lab meeting will also provide a venue for coordinating assignments and agreeing on a uniform grading system (see “Coordinating grading with other TAs” below).

**Incorporating feedback.** The lab meeting is also an occasion for gaining input about the previous lab exercise. The primary way labs and lab manuals are improved is through feedback from TAs. The best feedback comes from you because you understand the material being taught and the techniques employed.

**Setup and breakdown of labs.** You are responsible of keeping the laboratory picked up. You are also responsible for helping setting up and breaking down labs each week. Specific responsibilities are assigned during weekly lab meetings or by the instructor.

**Familiarizing yourself with the material.** In addition to attending the lab meeting, you might need to do some background reading<sup>1</sup> to determine the best way to present the material.

**Overseeing undergraduate TAs.** Undergrad TAs should attend the lab meetings. However, if

<sup>1</sup>You can ask the course instructor for sources of background information.

they have an unavoidable conflict, you will need to schedule a separate time to review the lab exercises with them so they can be effective. In addition, more experienced grad TAs help the less experienced grad TAs and guide them in how to teach the lab exercises. Grades for undergraduate TAs are assigned by the instructor of the course, but instructors will likely seek feedback from you about the quality of undergraduate TAs that you oversee. The biology department is also developing an undergraduate TA evaluation form that you will fill out and discuss with undergraduate TAs that you oversee during the course.

**Coordinating grading with other TAs.** Grading must be fair and consistent across all lab sections to maintain Biology Department grade standards (e.g., avoiding grade inflation) and to assure students that no one is being inadvertently punished or rewarded just because they happened to end up in a particular lab section.

**Holding office hours.** Schedule 2-3 hours a week in your office for answering students' questions. Those hours should be guaranteed to students, but you should also be available at other times for appointments in case students can't make it to your regular hours.

**Time management.** As a TA you will have numerous demands on your time in addition to your own classes and research responsibilities. Your success as a graduate student depends on your ability to balance these many demands. You will need to invest the time necessary to be well-prepared to teach your sections, which can be difficult your first time teaching a class. If you are having difficulty, see your lead instructor or TA mentor for suggestions on how to prioritize. If that doesn't help, see the Graduate Program Advisor or another member of the Graduate Committee.

**Teaching evaluations by your students.** You will need to administer teaching evaluations during the end of the course—the department will order

them for you. Give these to the students on or near the last day of class, following the instructions provided. See Section 7.4.8 for more details. Comments on student evaluations are important for helping to evaluate and improve your performance.

**TA evaluations by the course instructor.** Your lead instructor will also fill out an evaluation of your performance during the quarter. The criteria on this form include the following:

- Willingness, cooperation, and reliability in undertaking assignments, preparing lab materials, and maintaining a clean lab.
- Preparedness for each lab session.
- Willingness to learn unfamiliar materials that are necessary for effective teaching.
- Basic knowledge of general biology and course subject matter.
- Interaction with students: enthusiasm, ability to communicate the material, and ability to keep the material at an appropriate level for the students.

### 7.2.3 Appeals Process

If you feel that you have been unfairly denied a TA renewal, you may appeal your case to the Department Chair and Graduate Committee. You may initiate such a discussion either through the Department Chair or the Graduate Program Advisor.

## 7.3 Compensation and Benefits

### 7.3.1 Pay Rate and Schedule

Teaching assistants receive a stipend and a partial tuition waiver for eligible enrollment. Teaching assistantships are paid positions and are not awarded on the basis of financial need. Teaching assistants are paid twice monthly. According to requirements of the Graduate School, full-time graduate teaching assistants (no more than 20 hours/wk) earn a

minimum of approximately \$12,117 (cash compensation) per academic year. Half-time graduate teaching assistants (10 hours/wk) receive approximately \$6,057 per academic year<sup>2</sup>. Current pay rates can be found [here](#). Students receiving a full-time appointment (20 hr/wk) may not accept other on-campus employment during the time they are in pay status as graduate assistants. Students receiving a half-time appointment (10 hr/wk) may accept other on-campus employment up to 9 hours per week during the time they are in pay status as graduate assistants.

### 7.3.2 Tuition Waiver

Currently, a partial tuition waiver is in effect for all graduate teaching assistants. The tuition waiver only pays for courses leading to the degree as listed on a student's Plan of Study. *All graduate teaching assistants* pay an out-of-pocket fee each quarter, approximately 10% of the total tuition amount (subject to change). The waiver applies only for credit taken through regular Western registration (not extended education or other institutions). Current tuition waiver rates can be found [here](#).

### 7.3.3 Benefits

Teaching assistants funded by the Graduate School are eligible for medical benefits; details are included with each assistantship award letter. For questions concerning health insurance coverage contact the Graduate School at x3170.

## 7.4 Teaching Resources

### 7.4.1 Contacts

Information is available on the stockroom's [web page](#).

<sup>2</sup>The Biology Department's compensation figures are typically higher than these amounts for both full-time and half-time graduate teaching assistants.

### Primary Contact

Instructor responsible for the course.

### Technical Staff in Biology Stockroom (BI 254)

Each lab course has a laboratory technician assigned to it. That lab tech should be your primary contact for all lab supplies and setup needs. If you need immediate assistance (e.g., chemical spill, accident, ran out of gloves or slides, etc.) during lab, come to the stockroom (or call x3644) and whoever is there will help.

The Biology Stockroom (BI 254; Hours: approximately 8am - 4:30 pm) provides the following course services:

- The storage and distribution facility for lab supplies, equipment and chemicals.
- Reservations for vans, laptops, and equipment.
- Access to general and special equipment for students, staff and faculty.
- The centralized area for the collection of hazardous waste.
- The receiving and distribution center for incoming freight.

### Peter Thut Stockroom Supervisor (x2905)

- Biology Department safety officer (mandatory safety training for all graduate teaching assistants)
- contact person if you have building-related concerns (e.g., no heat, no tap water, no DI water, leaks, or problems with cold rooms)
- contact person for office needs (e.g., computer problems, broken chair, etc.)
- provides technical support and instruction for most pieces of equipment
- liaison with technicians in Scientific Technical Services

- loans equipment and supplies (when available) for graduate research
- orders supplies for graduate student research after your Thesis Committee has approved the proposed research and the proposed budget

**Jeannie Gilbert** Scientific Instructional Technician II (x7482)

- contact person for inventory of live organisms on hand
- contact person for collecting live organisms
- contact person for needs for the lab you are teaching, if she is your assigned SIT
- contact person if you have questions or problems related to Biology computers<sup>3</sup>. Wireless connection instructions can be obtained by visiting the ATUS website or by speaking to Peter or Jeannie.

**Mark Price** Scientific Instructional Technician II (x3928)

- contact person for use of autoclaves
- contact person for needs for the lab you are teaching, if he is your assigned SIT
- contact person for liquid nitrogen
- provides technical support and instruction for many pieces of equipment on the 4th floor

**Kendra Bradford** Scientific Instructional Technician II (x4192)

- contact person for use of autoclaves
- contact person for needs for the lab you are teaching, if he is your assigned SIT

<sup>3</sup>If you use your personal laptop computer instead of department computers and want to interface your computer with the campus network via ethernet, you should contact networking and computer support for the College of Sciences and Technology (x7234).

- contact person for liquid nitrogen
- provides technical support and instruction for many pieces of equipment on the 4th floor
- oversees keys for the Biology building

**Sarah Hoag** Scientific Instructional Technician (x3905)

- contact person for needs for the lab you are teaching, if he is your assigned SIT
- provides technical support and instruction for many pieces of equipment on the 4th floor
- oversees keys for the Biology building

#### **Office Staff in Biology Department Office (BI315)**

The Biology Department office is located in BI 315 and open Monday through Friday; 8:00am-12:00pm and 1:00pm-5:00pm. The Biology Department office staff consists of Mary Ann Merrill (Administrative Service Manager and Graduate Program Administrator), Maren Brinson and Keeley Mathews (Undergraduate Advisors and Program Coordinators), and Alexis Slough (Office Assistant).

Biology Office Staff provide the following course-related services:

- Teaching-related supplies, including pens, dry erase markers, push pins, whiteout, pencils, printer paper, graph paper, and transparencies. Note that if graph paper is needed other than what is available in the office, you should contact Biology Stockroom personnel, as they have access to a software program that makes custom graph paper.
- Advising undergraduate students regarding course registration.

The following list should help you direct your inquiries to the appropriate person in the Biology Office.

**Mary Ann Merrill**

- contact person for payroll appointment and paychecks
- contact person for reimbursements of research expenditures
- Graduate Program Coordinator
- provides overrides for graduate courses (e.g., Biology 690).
- orders teaching evaluations for graduate TAs.

#### Alexis Slough

- contact person for general inquiries
- contact person for copy duplicating requests (explain procedure and timeline)
- contact person for office supplies
- manages department web site
- maintains the Biology alumni and donor databases

#### Maren Brinson and Keeley Mathews

- contact person for registration problems (undergraduates only)
- provides classroom scheduling support and assists in the tracking of current Biology majors

#### 7.4.2 Canvas

Canvas is a great tool for teaching assistants. Canvas allows instructors to make announcements outside of lab and post learning material, documents, web links, quizzes, grades, audio and video, spread sheets, and presentation files. It also provides class-based email, testing and drop boxes for homework. Canvas sites, for courses in which you are either a student or an instructor, can be seen by clicking on the "Canvas" button after you log on to MyWestern. Canvas sites are automatically created for each course. Students are automatically added to each Canvas course.

For general Canvas support visit the ATUS [web-site](#).

#### 7.4.3 Keys

See Section 1.5.3.

#### 7.4.4 Grade Books

Grade books are not currently offered.

#### 7.4.5 Photocopying

##### Large Copy Jobs (> 12 copies)

If you need copies made of a handout or test, please submit your request to Keeley in the Biology office. The copy jobs are done by WWU Copy Services and picked up four times a day in the department office. Whenever possible, please plan ahead and allow at least 2 working days for your copy order to be completed.

To submit the copy job request, complete an online copy service request form. Go to the Biology home page and click on the Links for Graduate Students. You will find instructions on how to fill in a copy service request form, as well as the form itself. Usually, copy jobs are run on white paper, but if color paper is required, please indicate the color desired on the form (please note color paper adds extra cost).

Once the copy job is complete, Copy Services will deliver the copies back to the Biology Department office. Office staff will place the job in your office mailbox. If the copy job is an exam, the completed copy job will be locked in a cabinet and a blue note indicating the exam has returned will be in your office mailbox. Please ask office staff to retrieve the exam from the locked cabinet.

Please note that Copy Services usually completes jobs within 24 hours, but in some cases, jobs can be completed in less than 24 hours. Ask the Biology Office personnel if you find yourself in this position.

##### Small Copy Jobs ( $\leq$ 12 copies)

If you need to make 12 or fewer copies of a course teaching handout (includes Biology 101, 102, 204, 205, 206, 348, 349), you can use a copy code number that is assigned to you at the start of your TAship.

Please ask the office staff how to use the copier if you are unsure.

If transparencies are needed for your small copy job, simply ask office personnel for transparencies. Instructions on how to make transparencies are posted on the bulletin board above the copy machine in BI 317. If you need assistance, office staff is happy to help.

### 7.4.6 General Resources

#### Teaching Materials

Many labs have teaching materials, especially overheads, available from past quarters. These are sometimes found in the teaching lab rooms, but many TAs have personal teaching materials that they may share. The stockroom also has a supply of transparencies that can be checked out. Although there is no centralized source of lecture materials or quiz questions, former TAs often have hand-me-down resources to pass on. Teaching editions of relevant textbooks are often available in teaching lab rooms or on the “free stuff” shelves in the Biology copy room. If you still can’t get a copy of the course textbook that you need, talk to your lead instructor to see about getting an examination copy from the textbook company.

#### Teaching Supplies

General teaching supplies available in the Biology main office include: blank overhead transparencies, pens and markers (regular, for overheads, and for white boards), chalk, white out, glue, clips, staples, index cards of various sizes, notepads, graph paper, printer paper of various colors, etc. If you need special supplies not available in the office, speak with an office staff member to find out if they can be ordered or found elsewhere.

#### Lab Supplies

TAs should speak with stockroom staff to acquire specific laboratory supplies or equipment, or to replace/replenish laboratory items. When borrowing

glassware or other equipment from the stockroom, items must be signed out on one of the stockroom sign out sheets. To reserve a laptop/projector cart from the stockroom, be sure to check the reservation schedule ahead of time and add your name and course number to the reservation list for the time you will need it. To make reservations online, see the stockroom’s equipment and reservation [web page](#).

### 7.4.7 Department Vehicles

The following policies apply to all drivers of university vehicles, including Biology Department vehicles:

- must meet all requirements as described on the EH&S Risk Management [website](#).
- must go through van training to drive vans (Contact Peter Thut for registration for on-line training).
- must assume responsibility for the vehicle (e.g., reserve van; complete mileage forms, available in the Stockroom; turn off lights including interior lights, lock doors, and return keys to the Stockroom after use)
- notify Stockroom personnel if van requires fueling (1/4 tank or lower); if you are out of the Bellingham area and need refueling, the vehicle key is linked with the credit card for gas and oil purchases. Valid PIN number is on the metal sleeve for the credit card.

### 7.4.8 Teaching Evaluations

Teaching evaluation are a way to improve teaching and learning at Western Washington University, and provide one measure of an instructor’s teaching abilities.

**About one month before the end of each quarter,** TAs must request teaching evaluation forms from Mary Ann Merrill. Mary Ann will need the following information:

- Name



- Student number
- Course title or titles
- CRN number or numbers
- Form type (typically the G form for lab sections<sup>4</sup>)
- Delivery method
- Post results (either yes or no)

After handing out the evaluation forms, you must follow the attached evaluation guidelines, which include leaving the room while evaluations are being filled out and choosing a student to return the completed evaluations to the Biology main office. Approximately 2 weeks after the end of the quarter, the results of the teaching evaluations are returned to you from the Testing Center. You should review the comments, and give a copy of the summary sheet to the Graduate Program Coordinator (Mary Ann Merrill) as part of your quarterly evaluation procedure.

In addition to the standard multiple-choice questions on the Testing Center's form (Form G), you may wish to get student feedback on specific issues not addressed by those questions. For such additional feedback, you have three options:

1. There is room on Form G for five multiple-choice questions that you ask of the class (e.g. by writing them on the board or projecting them on a screen). The student responses to these questions are tallied by the Testing Center along with their responses to the rest of the questions on Form G, and reported on the Testing Center's summary sheet.
2. The Testing Center includes written comment sheets with the multiple-choice forms. You could ask students to respond to specific questions on these comment sheets. These will not be tallied by the Testing Center, but will be returned to you along with summary sheet.

3. You may decide to develop your own evaluation form, to be filled out by students along with the Testing Center's form. Again, the Testing Center will not tally these supplemental forms, but will include them in the evaluation packet returned to you after the quarter's end.

Whether or not you solicit feedback above and beyond the questions on Form G, the only evaluation you must submit to the Graduate Program Coordinator (Mary Ann Merrill) for inclusion in your Biology Department file is the summary sheet on which the results from Form G are tallied.

## 7.5 Graduate TA Office Assignment Policy

The Biology Department allocates office space to all graduate students who have TA appointments. The intention is to provide a space where students enrolled in a Biology course can have easy access to their graduate TAs for help outside of class, and where a graduate TA can conduct work connected with his or her teaching duties. The Department does not have sufficient space at present to guarantee office space to all graduate students; it is ultimately the responsibility of the thesis advisor to arrange work space for a graduate student who does not have a teaching appointment. The Graduate Committee assigns office space to TAs, and non-TAs (if space is available), using the protocol described below. The assignments are made in the third week of September, by which time all graduate students should be on campus and ready to move offices if required.

- 1st year graduate students are assigned office space in BI 416; if space is limited, 1st year TAs get priority over any non-TAs.
- 2nd year students with TAs have priority for second floor office space.
- If space is available, 3rd year TAs will retain their 2nd floor offices. If not, they will have to relocate (which 3rd year TA will leave will

<sup>4</sup>For different types of forms see the Testing Center's [website](#).

be determined by lottery). This means third year graduate students who already occupy office space on the second floor will have priority over second year non-TAs when it comes to the second floor office suite.

- If space is available in BI 416, non-TAs will be entered in a lottery to determine the order in which available space will be filled; 2nd year non-TAs will have top priority, and will participate in the lottery first. Any slots that remain will be filled by a lottery among third year non-TAs; 1st year non-TAs will be third in this order of priority.
- Graduate students who are within one quarter of finishing their thesis (and have submitted their Application for Degree form to the Graduate School, see Section 5.5) will retain their current office through the following quarter.
- If an office space is assigned to a student who never or rarely uses that space, this should be brought to the Graduate Committee's attention so that the person can be contacted and their space made available to another student.

Students who wish to exchange offices in a mutual agreement are welcome to do so, but they must inform the Graduate Program Advisor and the office staff of the change.

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## Sources of Funding

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### 8.1 Funds for Stipends and Tuition

For general information on funding opportunities consult the Graduate School's funding summary, which is available as link on the [graduate school's webpage](#). Western Washington's financial aid office has information regarding scholarships, which is available at their [website](#). The Office of Research and Sponsored Programs has information on research funding, which is available at their [website](#).

#### 8.1.1 Teaching Assistantships (TA)

See Section 7 for details of TA responsibilities, benefits and compensation.

#### 8.1.2 Research Assistantships (RA)

The main distinction between a TAship and an RAship is that funding for an RAship comes from research grants acquired by your thesis advisor or sometimes from outside committee members. Fall, Winter and Spring quarter RAs are compensated much like TAs (full time = 20 hr/week). This depends upon whether your advisor allocated funding specifically for these costs in the associated grant. If an RAship does not include a tuition waiver, you

may wish to apply for a partial tuition and fees waiver from the Graduate School (see Section 8.1.4). Summer RAships are typically paid at an hourly rate with an hours/week cap dictated by the advisor. At present, the minimum number of credits required for eligibility for an RAship is 2 credits, even for students that have not advance to candidacy.

#### 8.1.3 Graduate Work Study

Students may be eligible for work study, but must check the indicator box on the Free Application for Federal Student Aid (FAFSA). If you qualify for work study, you will serve as a graduate research assistant to faculty involved in research projects. You may be enrolled for as few as 4 credits in the quarter(s) in which you receive a work study award, as long as you have successfully petitioned the Student Employment Office. The typical award amount for work study is equivalent to approximately 15 hours of work per week during the academic year. For the Graduate School to make the best possible match between your interests/experiences and faculty research projects, interested faculty members write a brief memo to the Graduate Dean describing the research and the type of work a graduate work study research assistant would be asked to perform. Faculty may request students by name, but only stu-

dents who are eligible for financial aid may receive work study awards. Receiving work study funding does not guarantee you a work study position. For more information see the Office of Student Work Experience's [website](#).

### 8.1.4 Graduate Tuition Fee Waiver

The Graduate School may choose to offer partial waiver of tuition and fees to full-time, non-TA graduate students. You should notify the Graduate Program Advisor of your desire to be considered for a waiver. The Biology Department will then notify the Graduate School. To remain eligible, you must maintain an enrollment of at least 8 credits during the quarter(s) in which you receive the tuition waiver, unless other arrangements are made with the Graduate School. You must maintain at least a 3.0 GPA during quarter(s) in which the award is received, and must not be on probation from a previous quarter. Also, you must be making satisfactory progress toward your degree. TAs (full or half time) are not eligible. If you later receive a TAship, the tuition waiver will be cancelled for the quarter(s) in which you received the TAship. Preference is given to meritorious students with clear need. Usually, the call for such waivers goes out in spring and, if offered, typically covers \$1000 of graduate tuition.

### 8.1.5 Federal Loans

Financial need is determined by completing the FAFSA. Western's priority deadline is posted on their [website](#) (in the past it has been February 15 for Fall eligibility). Scholarship application materials are available beginning in January in the appropriate department office, or Western's Scholarship Center. Summer applicants needing financial aid for Summer Quarter must file the FAFSA for the current academic year. This is in addition to the FAFSA for the coming academic year, which begins Fall Quarter. After admission, summer students wishing to receive summer aid must submit the online Summer Aid Application, which is available on the Financial Aid Office website.

For details about FAFSA go to their [website](#)

### 8.1.6 External Funding

There are numerous opportunities for you to apply for external scholarships and research funds, for example, through the National Science Foundation (NSF) and many other private foundations (see also Section 8.4). The Research and Sponsored Programs Office (RSP) is an excellent resource for locating potential outside funding sources. Visit their [website](#) for more information. You are strongly encouraged to be proactive in seeking additional sources of funding. Getting a scholarship can free you from the additional commitments of TAing, leading to earlier completion of your thesis research. In addition, success in obtaining outside support looks really good on your resume, whether going on to a PhD program or a job.

## 8.2 Research and Travel Funding (Internal Sources)

When submitting requests for research funding, be sure to include sales tax and shipping in your budget. In addition, budget an additional 5-10% over the lowest price you have found, in case that distributor runs out of inventory or prices change between when you submit your budget and when you begin making purchases.

### 8.2.1 WWU Biology Department Funds

#### Research Funds

The Biology Department has limited funds to support thesis research by Biology graduate students. We try to provide a share of the pie to everyone, and in the recent past that share has been approximately \$250 for each student, with the possibility of matching funds from the Biology Department Chair's discretionary funds (see end of this section). This section details the procedure for requesting money from the department. All requests should be addressed to the Biology Graduate Committee, and sent to the Graduate Program Advisor.

1. You must meet with the Thesis Committee and have your proposed research approved (usually in spring quarter of your first year), as evidenced by Thesis Committee signatures on a copy of your thesis proposal. If the research will be conducted at SPMC, a signed approval form from SPMC will show that the facilities, boat time, and any SCUBA support will be provided to you by the marine center. The Thesis Committee should scrutinize the proposed experimental design and data collection regimens to establish that all aspects of the research are grounded in sound science and meet all permitting requirements.
2. At this same meeting the Thesis Committee should also examine the proposed budget as prepared by you and your thesis advisor. The proposed budget should list all expenditures associated with the research project, not merely those being requested of the Biology Department. Before signing your budget to indicate their approval of your proposed expenditures, the Thesis Committee should be certain that the budget is reasonable in view of the nature of the work undertaken and the total availability of funds.
3. You must forward to the Biology Graduate Program Advisor a copy of your thesis proposal and proposed budget (showing the total cost of the research and the total amount requested of the Biology Department), *both* signed by your Thesis Committee
4. The Biology Graduate Committee will consider the request relative to all other requests and to the amount of money available for graduate student support in the department budget. This committee will recommend to the Department Chair the amount to be granted to you, and for what purposes. This recommendation and one copy of the request will be kept in your departmental file.
5. No costs may be charged to the Biology Department funds without the approval of the Biology Graduate Committee and the Department

Chair. You assume the financial risk for any expenses incurred before the budget request is approved.

Requests are acted upon as they are received; allow at least 2 weeks for action. You will be notified when the Graduate Committee has reached a decision, and what amount was approved. The procedure for spending Biology Department money is complex, so you should spend some time with the Biology Fiscal Specialist as well, learning the procedures before actually spending any money.

### Travel Funds

The Biology Department has limited funds for partial support of graduate student travel that will enhance the professional development of students. Examples include: attendance at a professional scientific meeting to present results of thesis research and attending workshops to learn new skills that will benefit your research. This section details procedures to be followed when requesting travel money from the department. All requests should be directed to the Graduate Committee at least 6 weeks prior to the dates of travel.

1. If support is requested for presenting a paper at a meeting, you should forward to the Biology Graduate Program Advisor the abstract that was approved by the faculty advisor and submitted to the organizers of the meeting. If the request is for funds to attend a workshop, you should submit materials describing the workshop. In both cases, you should provide the following additional information:
  - (a) Name of meeting/workshop
  - (b) Dates and location of meeting/workshop
  - (c) Description of expected benefits
  - (d) Estimated cost of travel (registration, transportation, lodging)
  - (e) Method of transportation (car pools are encouraged)
  - (f) Other sources of support

- (g) A letter from the faculty advisor describing the benefits that the student would get attending the meeting/workshop
2. The Biology Graduate Committee will consider the request relative to all other requests and to the amount of money in the department budget. The committee will recommend to the Department Chair the amount to be granted. This recommendation and one copy of the travel request will be filed in your departmental folder.

### Matching Funds from the Chair

Once you are awarded Biology Department research funds (up to \$250) or travel funds (up to \$150) by the Biology Graduate Committee, you may also request a match from the Department Chair's discretionary matching funds. You can request such a match only once (i.e., either for research funds or for travel funds, but not both). Thus, your maximum departmental funding (including matching chair funds) is \$650: \$250 research, \$250 matching research funds from chair, and \$150 travel. Graduate students seeking matching funds from the chair should write a letter of request directly to the Department Chair, and should include with this letter a copy of their signed thesis proposal and budget.

### 8.2.2 WWU Office of Research and Sponsored Programs (RSP)

RSP "Grants In Aid of Research" assist graduate students in accomplishing their thesis work and can be requested for equipment, computer software, consumable items, travel, etc. Awards are confined to activities or equipment that are central to your thesis work and which are not available to you through the Biology Department. The maximum grant is \$1,000, which may be applied for and awarded more than once. The specific deadline for application, during Spring quarter, is announced each year by RSP. For more information see their [website](#).

### 8.2.3 Ross Travel Grant

Graduate School funds are available to support travel for graduate students to present papers at professional meetings and conferences. Preference is given to national and international level meetings rather than regional meetings. The grant covers the amount equivalent to the minimum airfare or other public transportation cost to the conference city, with a maximum of \$500 granted to any single applicant. Ground transportation, lodging, per diem and registration fees are generally not covered. Flight reservations **MUST** be booked through the official WWU travel agent. Contact your departmental administrative assistant for travel related information (Deadlines are Oct 1, Dec 15, March 15, and May 15). For more information see the Ross Travel Grant [website](#).

### 8.3 Undergraduate Research Assistants

Graduate students may seek the help of undergraduate students in carrying out both field and lab work related to their thesis research. Often there are undergraduates looking for ways to fulfill Biol 395 credits, complete work study hours or gain scientific research experience through volunteering. Once "hired", undergraduate assistants work on some aspect of the research project (e.g. sample collection, sample processing, field assistance, data entry) for a pre-established number of hours per week. You should speak with your advisor to pursue such an arrangement.

### 8.4 Research Related Funding (External Sources)

The Biology Graduate Program web site has a [web page](#) where funding opportunities are listed. You should check this list for potential funding for your thesis research, and consult with your advisor in preparing proposals for such funding.

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## Conflict Resolution

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Although interpersonal conflicts within the Biology Department are infrequent, it is important that you know what to do in the event that you find yourself in a conflict situation. In general, the first thing to do is to try to work things out with the person. Before approaching the individual, gather your thoughts and composure, and develop a plan for what you want to say. In your conversation with the individual, focus on the issue over which you have a conflict; you may want to bring specific examples that illustrate the issue. Try to think of ways to present the situation in a way that might help the person understand your perspective. Give the person the chance to explain their perspective about the situation. It may be helpful to think of the conflict as an opportunity for the two of you to develop a better understanding of each other and a better working relationship.

Regardless of the outcome of this meeting, it is a good idea to follow it up with a note (via email is fine) to the person, describing the situation (dates, events) that you discussed, as well as how things stand after your meeting. That way, if there is still a misunderstanding, the conversation can continue. Also, having a paper trail will be helpful, as documentation of your efforts to resolve the present situation or in the event that a similar future situation arises with that same person.

If you find that in spite of your best efforts, the conflict has not been satisfactorily resolved, you should seek help in one of the following ways:

- Lodge an *informal complaint*.
- File a *formal grievance*.

A formal grievance is serious, involves people from outside the department, and usually results in legal inquiries, depositions of statements, interviews of witnesses, etc. An informal complaint can be equally effective without involving the same degree of investigation and involvement of others.

### A.1 Informal Complaint

An informal complaint is handled primarily within the Biology Department following the sequences listed below, depending on the situation. Every effort would be made to resolve the conflict internally through this informal procedure. Unless the complaint involves a conflict between you and your thesis advisor, *be sure to talk the situation over with your thesis advisor*. It will be helpful to hear your advisor's perspective, and it's good for them to know about the situation.

In lodging an informal complaint, you should:

- Clearly explain to the contact person the nature of the complaint, including specific details of the events that transpired, and the dates of those events.
- Provide a copy of any documentation of your efforts to resolve the situation with the other party, as well as any evidence relevant to your complaint.
- Indicate what you suggest as a satisfactory resolution.

If you can't comfortably discuss the situation with the first person in the sequence, contact the next person in the sequence. Depending on the nature of your complaint, it may be necessary to involve additional people. The sequence for involving others is listed below for each type of complaint. If a person in the listed sequence is the person with whom you have a conflict, your complaint will be addressed to an alternate person (listed in parentheses). Each person handling your complaint should notify you in writing. Specifically, each person handling your case should: 1) acknowledge receipt of your complaint, and 2) describe the actions taken. In the event that you are not satisfied by the resolution of your complaint, you may appeal to the next person in the sequence.

## A.2 Formal Grievance

If the problem isn't resolved via an informal complaint, or if the problem is of a severe nature, a formal grievance can be filed. Often, the people who would be your primary contacts for an informal complaint can advise you on whether to file a formal grievance, and how to initiate the process under the specific WWU grievance policies. For further information on formal grievances, see the appendix of the WWU catalog for a description of the Academic Grievance and Appeal Policy and Procedures .

*Please use the following sequences for conflicts with:*

### Your thesis advisor:

- Other committee members.
- Biology Graduate Program Advisor (alternate: Biology Graduate Committee faculty member).
- Biology Department Chair (alternate: Biology Executive Committee member).
- Dean of the Graduate School.

### The instructor of a course you are TAing:

- Other instructors of that course.
- Biology Graduate Program Advisor (alternate: Biology Graduate Committee faculty member).
- Biology Department Chair (alternate: Biology Executive Committee member).
- Dean of the Graduate School.

### Another TA:

- Course instructor.
- Biology Department Chair.

### A thesis committee member:

- Thesis Advisor.
- Biology Graduate Program Advisor (alternate: Biology Graduate Committee faculty member).
- Biology Department Chair (alternate: Biology Executive Committee member).
- Dean of the Graduate School.

### Another Biology graduate student:

- Biology Graduate Program Advisor.
- Biology Department Chair.



**Biology Department staff (office, stockroom):**

- Thesis Advisor.
- Biology Department Chair.

**Shannon Point Marine Center (SPMC) staff:**

- Thesis Advisor.
- Director of SPMC.

**Biology faculty member:**

- Thesis Advisor
- Biology Graduate Program Advisor (alternate: Biology Graduate Committee faculty member).
- Biology Department Chair (alternate: Biology Executive Committee member).
- Dean of the College of Sciences and Technology.

**Graduate Program Advisor:**

- Thesis Advisor
- Biology Graduate Committee faculty member.
- Biology Department Chair.
- Dean of the Graduate School.

**Biology Department Chair:**

- Thesis Advisor
- Biology Graduate Program Advisor.
- Executive Committee member.
- Dean of Sciences and Technology.

**The Graduate School:**

- Thesis Advisor
- Biology Graduate Program Advisor.
- Biology Department Chair.
- Dean of the College of Sciences and Technology
- Provost