

GRADUATE STUDENT HANDBOOK

DEPARTMENT of BIOLOGY

*Last approved April 2012
Last revision January 2013*

Major revision approved on May 11, 2007 by the graduate faculty by a vote of 15 for and 0 opposed.
Revision concerning seminar hours approved on May 15, 2009 by the graduate faculty by a vote of 14 for and 0 opposed.
Reorganization, clarification, and corrections in order to comply with University policy made May 18, 2009 (faculty approval not required).
Revised to reflect new course number for Departmental Seminars on December 17, 2010 (faculty approval not required).
Revision of spring graduate seminar approved on April 19, 2012 by the graduate faculty by a vote of 9 for, 4 opposed, and 1 abstention.
Reorganization, clarification, and corrections were made by Drs. Peterjohn and Rio on January 23, 2013 (faculty approval not required).
All graduate students entering the program after these dates should follow the material contained in the appropriate revision of this handbook.

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INTRODUCTION

The Department of Biology's Graduate Program is dedicated to scholarship in academics and research. The objectives of the program are to empower students to: 1) recognize important biological problems; 2) design, execute, and analyze experiments aimed at solving important problems; and 3) communicate their findings in oral and written form. In addition, the program hopes to foster an awareness of the social and political issues of the day related to biology, and a desire to continue independent study after graduation.

The Department of Biology offers graduate courses and research that lead to M.S. and Ph.D. degrees in Biology.

Web Site

Information about graduate programs in the Department of Biology as well as application materials can be found on the world-wide web at the following address:

<http://biology.wvu.edu/graduate>

Admission

Inquiries and applications for graduate studies in Biology should be sent to:

Dr. Rita V.M. Rio, Associate Chair for Graduate Studies
Department of Biology
P. O. Box 6057
West Virginia University
Morgantown, WV 26506-6057.
Rita.rio@mail.wvu.edu

Application Process

Prospective candidates must apply by January 1 for regular admission in the Fall semester. In special cases, applications from exceptional students will be considered at other times.

Admission to the program is dependent upon a vote of acceptance by the Graduate Committee. The Committee expects to admit only students who exceed or satisfy the following minimum requirements:

M.S. Minimum Requirements

1. Sufficient general academic scholarship as evidenced by:
 - a. An undergraduate or graduate grade point average (GPA) of 3.0 or higher.
 - b. Three letters of recommendation.
 - c. A 40th percentile ranking for the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) General Test.
2. An adequate science and mathematics background (normally 1 year of mathematics, 1 year of physics, and 2 years of chemistry).
3. Provisional acceptance by a professor who is willing to serve as the student's faculty advisor (after applications have been reviewed).
4. A 1- to 2-page essay describing the student's past research experience and expectations for career goals.

Ph.D. Minimum Requirements

1. Sufficient general academic scholarship as evidenced by:
 - a. An undergraduate or graduate grade point average (GPA) of 3.0 or higher.
 - b. Three letters of recommendation.
 - c. A 50th percentile ranking for the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) General Test.
2. An adequate science and mathematics background (normally one year of mathematics, one year of physics, and two years of chemistry).
3. Provisional acceptance by a professor who is willing to serve as the student's faculty advisor (after applications have been reviewed).
4. A 1- to 2-page essay describing the student's past research experience and expectations for career goals.

It is also recommended that both MS and PhD students arrange to visit the department and speak with several faculty members.

In summary, application materials must be submitted online at following web page:

<https://app.applyyourself.com/AYApplicantLogin/ApplicantConnectLogin.asp?id=vwugrad>

Note: Scores from the Advanced Biology Test of the GRE are not required for a complete application. However, high scores on this exam may make a candidate's application more competitive.

International Students (Both M.S. and Ph.D.)

All international students must submit TOEFL scores to Admissions and Records in addition to the above materials.

Competitive Applications

We like to see the following in a successful application:

- GPA of 3.0 or higher
- 40th percentile ranking for the verbal, quantitative, and analytical sections of the GRE for MS
- 50th percentile ranking for the verbal, quantitative, and analytical sections of the GRE for PhD
- Three supportive letters of recommendation from people (typically faculty) who are familiar with your abilities.
- A thoughtful essay describing the student's past research experience and expectations for career goals
- A match between your interests and those of a faculty member
- An adequate background in science and mathematics
- A strong interest in scientific research
- Provisional acceptance by a member of the graduate faculty in our department (after applications have been reviewed).

The last item is very important. We will not accept anyone without at least one of our faculty members agreeing to serve as that student's advisor.

For international students, we also like to see a TOEFL score > 100 for the internet-based exam, or > 250 for the computer-based exam, or > 600-603 for the paper-based test.

DEGREE PROGRAMS

REQUIREMENTS FOR THE M.S. DEGREE

Steps for the Master's Degree Student

Note: Students who enter knowing who their advisor will be (by mutual consent of the student and faculty member), please skip to Step 2.

Step 1: Rotation: Selection of an Advisor

Choosing a faculty advisor is one of the most important decisions a student makes. Students who enter without a pre-selected Advisor will take part in a formal process called 'rotation'. During this time the Associate Chair for Graduate Studies serves as the temporary advisor for the graduate student and the Graduate Committee will act as the student's committee, should committee input be required on any issue.

Purpose: Rotation among laboratories serves both students and faculty. The intention of this activity is to acquaint the incoming student with research opportunities in the laboratories of his, or her, potential advisors, and to give the student the information needed to make an informed choice. The student's activities will be directed by the faculty, and may include informal discussions, assigned readings followed by discussions, lab tours, field trips, assisting graduate students, technicians, or postdoctoral associates with experiments, or other activities deemed appropriate within the time constraints of the rotation.

Student responsibilities: Students in consultation with the potential advisors will set the rotation order. After these arrangements are made, they should be communicated, in writing, to the Associate Chair for Graduate Studies within the 1st two weeks of their first semester. Students are expected to do all assignments on time and keep appointments with potential faculty advisors. The student is expected to spend 3 - 4 hours per week per credit hour on rotation-related activities.

Faculty role: Faculty participating in a rotation will coordinate rotation activities in their lab. If the student selects an advisor prior to rotating in another faculty member's lab, that faculty member may choose to 'opt out' of the rotation. Opting out may occur at the faculty member's prerogative, but is not a choice the student may make once the rotation is underway.

Duration: The whole rotation will last for one semester. The duration in each person's lab will be either 1 mo. (for a 3-lab rotation) or 1.5 mo. (for a 2-lab rotation). By the end of the rotation semester, students must select a faculty advisor.

Credit: The student should sign up for 2 credits of Biol. 797.

Step 2: Selection of an Advisory Committee

In the M.S. degree program, the Advisory Committee consists of at least three people; the Chairperson (the student's faculty advisor) and at least two additional members who are chosen by the student in consultation with his, or her, advisor. One of the additional members may be (but does not have to be) from outside the Department of Biology. No more than one person may be a nonmember of the graduate faculty at WVU.

It is the job of the Advisory Committee to meet with the student to plan coursework, discuss the student's research project, approve the Program of Study, provide feedback and advice as a result of progress reports on the research, and conduct the thesis defense. The faculty advisor is the

Chairperson of the Advisory Committee and must be a member of the Biology Department. Exceptions to this rule may be granted in individual cases by the Biology Graduate Committee. Additional committee members from West Virginia University must be members of the Graduate Faculty. Committee members who are not members of West Virginia University may be requested to submit their qualifications to the Biology Graduate Committee for approval. The committee as a whole is expected to meet with the M.S. student at least once per semester.

Step 3: Program of Study

For a M.S. student, the Program of Study is a written document consisting of two parts: 1) an outline of past, present, and future course work for his, or her, graduate student career; and 2) a written plan of a student's proposed research project. **A written Program of Study must be approved by a M.S. student's Advisory Committee no later than two semesters after entering the program.**

A student's plan for future coursework will be based on expected course offerings in the coming years, but if those courses are not offered, or the timing is different than proposed, the student will not be held accountable. The coursework summary should follow a standard format (See Appendix B), and changes to the planned course schedule should be approved by the Advisory Committee and submitted as an addendum to the original program of study to the Associate Dean of Graduate Studies.

The Research Plan portion of the Program of Study must be no more than 5 single-spaced pages in length and follow a standard format (See Appendix B). It must be written by the student and approved by the student's Advisory Committee. A student's research project is selected according to his, or her, interests and goals through consultation with their faculty Advisor and Advisory Committee.

Upon approval of the entire program of study by the student's Advisory Committee, a signed copy is given to the Associate Chair for Graduate Studies who will make it available in the Departmental Chair's office to all members of the Biology Faculty for comment for a period of five days prior to submission to the Associate Dean for Graduate Studies.

Late Programs of Study are detrimental for both students and their committees. If you fall behind, you will be asked to complete this task within a prescribed time or you will need to provide a letter of explanation to the Graduate Committee at least two weeks before the end of the semester which (a) outlines the reasons you believe this goal is unattainable, and (b) proposes an alternative timeline. The Graduate Committee will then make a decision, and may, at its option, grant a 1-semester grace period. Alternatively, the Graduate Committee will call for a meeting with you and your advisor to discuss your future in the graduate program. Secondary appeals of such decisions to the Departmental Chair will be possible.

Step 4: Course Work

An M.S. student will enroll in courses in any area that the Advisory Committee feels that the student is deficient or any courses necessary to further the knowledge of the student in his or her chosen field of study.

Course work requirements & constraints for a M.S. student include the following:

- A minimum of 30 hours of graduate credit is required from courses numbered >400 in the Graduate Catalog, and in which the grade earned is A, B, C, P, or S.
- A maximum of 6 hours of thesis research credit (Biol. 797) can be counted towards the 30-hour requirement. Grades of satisfactory (S) or unsatisfactory (U) for Bio. 797 will

be assigned by the student's faculty advisor.

- A maximum of 6 hours of graduate seminar credit (Biol. 796) can be counted towards the 30-hour requirement. (*Note: To be in accordance with university policy, the department considers these seminars to be graduate coursework*)
- None of the hours for Departmental Seminars (Biol. 799 Graduate Colloquium) can be counted towards the 30-hour requirement.
- A maximum of 12 hours (40% of course credit) may be derived from courses numbered 400-499.
- All M.S. students are **required to register for, and attend, the graduate seminar (Biol. 796) every Fall semester while they are in residence.**

The Fall Graduate Student Seminar will consist of one section coordinated by a single faculty member. During this seminar every student who has been in the program for ≥ 1 year will give a professional presentation about his, or her, research to all other graduate students. Each student will receive feedback on their presentation.

- During their career, all M.S. students are **required to register for, and attend, two graduate seminars in the Spring (Biol. 796) that covers six core professional skills.** The two seminars will be offered in alternate years. One seminar will cover: communicating science to the public, career planning, and persuasive writing. The second seminar will cover: scientific integrity (ethics), work/life balance (time management), and social justice in science careers. The Spring Graduate Seminar will be taught by three faculty members with each teaching one of the three topics to be covered (i.e. 1/3 of the course).

This seminar is intended to enhance the professional skills of our graduate students in important areas that are not usually taught as part of a formal graduate curriculum

Students needing more seminar hours to reach the maximum allowed for their 30 hours required to graduate may take courses offered by the graduate academy.

- Graduate students are expected to attend Departmental Seminars (Biol. 799 Graduate Colloquium) in order to become acquainted with research being conducted within and outside the department. **All M.S. students are required to register for, and attend, the Departmental Seminars given during at least three (3) semesters of their academic careers. When receiving course-credit, more than two unexcused absences will result in a failing grade.**
- **A cumulative grade point average of 3.0 is required** by the Department of Biology for continuation in the graduate program. A student who fails to maintain this average is expected to make up the grade point deficiency in the following semester in order to continue in the program. The summer term is not considered as a semester in the above requirements. If a second semester (at any time) with a substandard cumulative grade point average occurs, the Graduate Committee will call for a meeting with you and your advisor to discuss your future in the graduate program. A grade of "D" in any course will not be counted as fulfilling graduate degree requirements, but will be used in calculating the graduate grade point average.

Step 5: Writing a Thesis

The thesis is expected to be revised from the first writing and may require several revisions before it is acceptable to the faculty Advisor. **The draft approved by the faculty Advisor must be given to the members of the Advisory Committee at least three weeks before the thesis defense.** Additional revisions may be required. If more than one committee member believes the thesis is not ready for defense at the scheduled date, then the defense must be rescheduled for a later date.

The thesis must demonstrate the ability to carry out research, and follow the Electronic Thesis and Dissertations (ETD) policy guidelines regarding format and organization of the thesis or dissertation. Complete program policy and collection access information is available online at www.wvu.edu/~thesis. Within the University constraints on format, students are encouraged to format chapters of their thesis for submission to peer-reviewed journals.

Step 6: Thesis Defense

The thesis defense is the final examination given by the Advisory Committee after all other requirements have been satisfied. The student must be registered for at least one credit hour in the semester of graduation (whether on- or off-campus). If the student has an assistantship that final semester, they must be registered as a full-time student in order to receive a tuition waiver.

The M.S. thesis defense should be held prior to the college deadlines that are announced every semester. The defense consists of two parts: 1) a public seminar in which the student gives an oral presentation of his, or her, thesis and responds to questions from those attending; and 2) a closed meeting with the student's Advisory Committee during which the student addresses any questions and concerns the committee members may have. To better evaluate the student's understanding of his, or her, own research, the faculty Advisor is expected to be silent during the public portion of the thesis defense.

The Advisory Committee evaluates the final examination performance and makes the recommendation to pass or fail the student. More than one unfavorable vote from the Advisory Committee constitutes failure, and all voting is done by secret ballot. In the event that the student fails, he/she must re-take and pass the final examination before being awarded the Masters degree. Re-examination may not be scheduled without approval of the Associate Dean for Graduate Studies.

At the end of a successful examination, the Advisory Committee members sign the "shuttle sheet" and a copy of the signed "shuttle sheet" is made for the Associate Chair for Graduate Studies and the original is given to the Associate Dean for Graduate Studies in the College of Arts and Sciences in accordance with the college deadlines that are announced every semester.

Once all corrections have been completed the signed signature page for the ETD should be delivered to the library.

The student's faculty advisor reports the results of the examination and acceptance of the thesis to the Associate Chair for Graduate Studies and the Associate Dean for Graduate Studies in the College of Arts and Sciences within 24 hours of completion.

Step 7: Graduation

The student is responsible for complying with all college and university requirements for graduation that are available at the beginning of every semester from the Associate Chair for Graduate Studies.

Time Limits and Residence

A Masters degree can usually be completed in 3-4 years. Full-time students in our department are expected to complete all requirements for the program within four years, after which teaching assistantship support may be withdrawn. Regardless of status, all requirements for an M.S. degree must be completed within a period of eight years, starting with the initial enrollment after the most recent degree. For regulations governing leaves of absence while in an M.S. program, see the University Graduate Catalog.

A graduate student who is not in residence on campus during the year must send an annual letter of intent to remain in the graduate program to the Associate Chair for Graduate Studies.

Two semesters of full-time association with the Biology Department Graduate Program in Morgantown are necessary to fulfill the residency requirements. Exceptions to this would need to be reviewed, and approved, by the Graduate Committee.

Changing Degree Programs

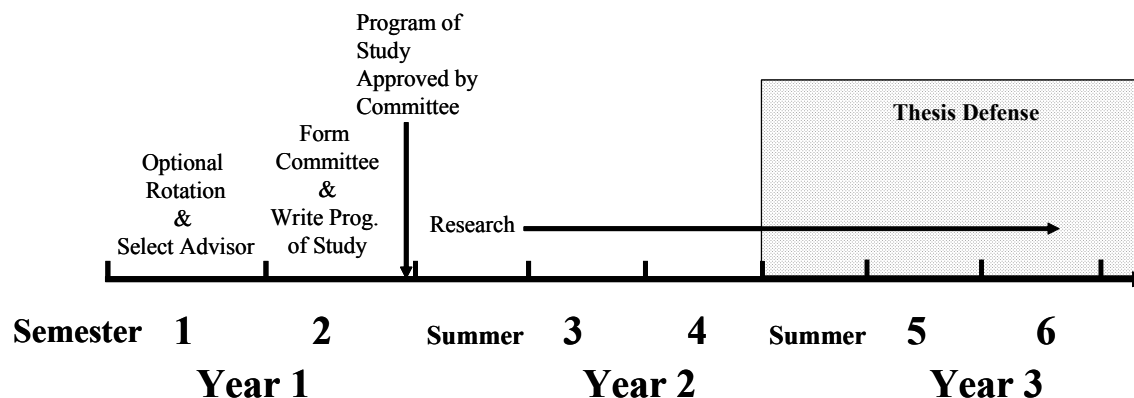
Proposals to change from the Masters program to the Ph.D. program will only be considered after completion of two semesters of coursework. Graduate students wishing to make this change must: 1) reach a mutual agreement with their faculty Advisor that this is appropriate and in the student's best interest; and 2) submit the following materials to the Graduate Committee, which will be responsible for approving or denying the request:

- a typed statement from the student explaining why they want to make this change,
- a confidential letter of recommendation from the faculty Advisor, and
- permission to review the student's file, including grades since entering graduate school, GRE scores, etc.

These changes will not be approved automatically as it is assumed that there may have been reasons that the student was admitted to the Masters program, rather than the Ph.D. program, initially. Rather, such a change should be viewed as an application process, in which all the criteria for admission to the Ph.D. program will be applied. If admitted, the student's new timeline will be communicated with the admission letter by the Associate Chair for Graduate Studies.

Note: Due to pay scale differences between Masters and Ph.D. students, every attempt will be made to increase the financial support accordingly for a student who is approved to switch from the Masters to the Ph.D. program. However, due to commitments already made to other students and budget constraints, this raise is not automatic, and will be made only if the Departmental budget can support it.

Timeline for MS students



Adherence to Time Line and Consequences of Delay

Missing required deadlines is costly for the student, faculty advisor, and graduate program. The timelines have been designed to move students through their graduate careers in a timely manner and to ensure that exams are rigorous and meaningful.

The Associate Chair for Graduate Studies will assess the progress of each student once per year, immediately following the beginning of the Fall semester. If this assessment reveals that a student has missed a deadline on the timeline for his, or her, degree, the Associate Chair for Graduate Studies will inform the student and Advisor of this fact, and provide the student with specific goals that must be completed within a specified time frame. If this goal cannot be met, then the student should write a letter of explanation to the Graduate Committee at least two weeks before the end of the specified time frame which: a) outlines the reasons they believe this goal is unattainable; and b) proposes an alternative timeline. The Graduate Committee will then make a decision, and may, at its option, grant a 1-semester grace period. Alternatively, the Graduate Committee will call for a meeting with the student and his, or her, advisor to discuss the student's future in the graduate program. Secondary appeals of such decisions to the Departmental Chair will be possible. This process applies to full-time, 'part time', and non-resident students in our Program.

REQUIREMENTS FOR THE Ph.D. DEGREE

Steps for the Ph.D. student

Step 1: Rotation: Selection of an Advisor (an option only for students entering with more than one potential faculty advisor; those knowing who their advisor will be (by mutual consent of the student and faculty member), please skip to Step 2)

Choosing a faculty advisor is one of the most important decisions a student makes. Students who enter without a pre-selected Advisor will take part in a formal process called 'rotation'. During this time the Associate Chair for Graduate Studies serves as the temporary advisor for the graduate student and the Graduate Committee will act as the student's committee, should committee input be required on any issue.

Purpose: Rotation among laboratories serves both students and faculty. The intention of this activity is to acquaint the incoming student with research opportunities in 2 - 3 laboratories selected by the student and to give the student the information they need to make an informed choice of Advisor. The student's activities will be directed by the faculty, and may include informal discussions, assigned readings followed by discussions, lab tours, field trips, assisting graduate students, technicians, or postdoctoral associates with experiments, or other activities deemed appropriate within the time constraints of the rotation. For faculty, rotation allows them to assess the existence of a good match for a mentor-student relationship in their laboratory. The ultimate goal by the end of the semester is for the student to select a consenting professor to be his, or her, permanent Advisor.

Student responsibilities: Students arrange to rotate through the labs of each of their potential faculty advisors. Students are expected to do all assignments on time and keep appointments with potential faculty advisors. The student is expected to spend 3 - 4 hours per week per credit hour on rotation-related activities.

Faculty role: If faculty agree to participate in rotation, then they agree to coordinate rotation activities in their lab. If the student chooses another faculty member to serve as his, or her, advisor prior to rotating in a given faculty member's lab, that faculty member may choose to 'opt out' of the rotation. Opting out may occur at the faculty member's prerogative, but is not a choice the student may make once the rotation is underway.

Duration: The whole rotation will last for one semester. The duration in each person's lab will be either 1 mo. (for a 3-lab rotation) or 1.5 mo. (for a 2-lab rotation). By the end of the rotation semester, students must select an Advisor.

Credit: The student should sign up for 2 credits of Biol. 797

Step 2: Committee Formation

The Advisory committee must be formed and meet with the student by the end of the 2nd semester. Before the end of the 2nd semester the Advisory Committee must have also reviewed and approved the students program of study.

In the Ph.D. program, the Advisory Committee consists of five persons: The Chairperson (Advisor) and four additional members chosen by the student in consultation with the Advisor. One, but not more than two, of the additional members must be from outside the Department of Biology. No more than one person may be a nonmember of the graduate faculty at WVU.

Step 3: Program of Study

The Program of Study is a written document consisting of two parts: 1) an outline of past, present, and future course work for a student's graduate career; and 2) a written plan of a student's proposed research project. **A written Program of Study must be approved by a Ph.D. student's Advisory Committee no later than two semesters after entering the program.**

It is understood that the plan for future course work is based on expected course offerings in the coming years, but if those courses are not offered, or the timing is different than proposed, the student will not be held accountable. The coursework summary should follow a standard format (See Appendix B), changes to the planned course schedule should be approved by the Advisory Committee and submitted as an addendum to the original program of study to the Associate Dean of Graduate Studies.

The Research Plan contained in the Program of Study is intended to enable students to begin their research in a timely fashion and with the benefit of input from the Advisory Committee. The research plan must be no more than 5 single-spaced pages in length and follow a standard format (See Appendix B). It must be written by the student and approved by the student's Advisory Committee. A student's research project is selected according to his, or her, interests and goals through consultation with the student's faculty Advisor and Advisory Committee. The Research Plan in the Program of Study, however, is separate from the Research Proposal that a student will write and defend later in his, or her, academic career.

Upon approval of the entire program of study by the student's Advisory Committee, a signed copy is given to the Associate Chair for Graduate Studies who will make it available in the Departmental Chair's office to all members of the Biology Faculty for comment for a period of five days prior to submission to the Associate Dean for Graduate Studies.

Late Programs of Study are detrimental for both students and their committees. If you fall behind, you will be asked to complete this task within a prescribed time or you will need to provide a letter of explanation to the Graduate Committee at least two weeks before the end of the semester which (a) outlines the reasons you believe this goal is unattainable, and (b) proposes an alternative timeline. The Graduate Committee will then make a decision, and may, at its option, grant a 1-semester grace period. Alternatively, the Graduate Committee will call for a meeting with you and your advisor to discuss your future in the graduate program. Secondary appeals of such decisions to the Departmental Chair will be possible.

Purpose: The Program of Study ensures that the student receives guidance on his, or her, course work and research project as early as possible, and that the student's committee becomes actively involved in guiding his, or her, education.

Timing: The Program of Study should be completed by the end of the 2nd semester and approved by the student's advisory committee at the first meeting of the committee with the student.

Criteria for Approval: The student meets course-credit expectations and his, or her, advisory committee approves the student's course-work plan. The course-work plan should adequately support the student's research and career-development goals.

Step 4: Coursework

A Ph.D. student must enroll in courses that the Advisory Committee feels are needed to adequately prepare the student for his, or her, research and career-development goals. Additionally, the Advisory Committee may recommend courses to further the knowledge of the student in his or her chosen field of study.

Course work requirements & constraints for a Ph.D. student include the following:

- A minimum of 30 hours of graduate credit is required from courses numbered >400 in the Graduate Catalog, and in which the grade earned is A, B, C, P, or S.
- A maximum of 12 hours (40% of course credit) may be derived from courses numbered 400-499.
- If considered applicable by the Advisory Committee, courses taken within the past 5 years for an M.S. degree (a 12 hour maximum) may be counted towards the Ph.D. degree.
- A maximum of 6 hours of thesis research credit (Biol. 797) can be counted towards the 30-hour requirement. Grades of satisfactory (S) or unsatisfactory (U) for Bio. 797 will be assigned by the student's faculty advisor.
- A maximum of 6 hours of graduate seminar credit (Biol. 796) can be counted towards the 30-hour requirement. (*Note: To be in accordance with university policy, the department considers these seminars to be graduate coursework*)
- None of the hours for Departmental Seminars (Biol. 799 Graduate Colloquium) can be counted towards the 30-hour requirement.
- A minimum of two semesters serving as a teaching assistant (T.A.).
- In the semester prior to the Preliminary Examination, the student should sign up for the 3-credits of Biology 797 (Graduate Research) which will be used to prepare for the Prelim (described below).
- All Ph.D. students are **required to register for, and attend, the graduate seminar (Biol. 796) every Fall semester while they are in residence.**

The Fall Graduate Student Seminar will consist of one section coordinated by a single faculty member. During this seminar every student who has been in the program for \geq 1 year will give a professional presentation about his, or her, research to all other graduate students. Each student will receive feedback on their presentation.

- During their career, all Ph.D. students are **required to register for, and attend, two graduate seminars in the Spring (Biol. 796) that covers six core professional skills.** The two seminars will be offered in alternate years. One seminar will cover: communicating science to the public, career planning, and persuasive writing. The second seminar will cover: scientific integrity (ethics), work/life balance (time management), and social justice in science careers. The Spring Graduate Seminar will be taught by three faculty members with each teaching one of the three topics to be covered (i.e. 1/3 of the course).

This seminar is intended to enhance the professional skills of our graduate students in important areas that are not usually taught as part of a formal graduate curriculum

Students needing more seminar hours to reach the maximum allowed for their 30 hours required to graduate may take courses offered by the graduate academy.

- Graduate students are expected to attend Departmental Seminars (Biol. 799 Graduate Colloquium) in order to become acquainted with research being conducted within and

outside the department. **All Ph.D. students are required to register for, and attend, the Departmental Seminars given during at least five (5) semesters of their academic careers. When receiving course-credit, more than two unexcused absences will result in a failing grade.**

A **cumulative grade point average of 3.0 is required** by the Department of Biology for continuation in the graduate program. A student who fails to maintain this average is expected to make up the grade point deficiency in the following semester in order to continue in the program. The summer term is not considered as a semester in the above requirements. If a second semester (at any time) with a substandard cumulative grade point average occurs, the Graduate Committee will call for a meeting with you and your advisor to discuss your future in the graduate program. A grade of "D" in any course will not be counted as fulfilling graduate degree requirements, but will be used in calculating the graduate grade point average.

Step 5: Directed Readings

Once a student's advisory committee has been formed (no later than the end of the 2nd semester), each committee member will provide the student with 5-10 critical readings (chapters or papers) that will serve as the basis for the Preliminary Written & Oral Examination.

Course Credit: During the semester of the Written and Oral Examination (Semester 3), he/she should sign up for at least 3 credits of Biol. 797 (Graduate Research) which will be used to prepare for this examination. The student will schedule meetings with each faculty member on his, or her, committee to discuss questions concerning the assigned readings. The students' faculty advisor will assign grades based on data provided by the student regarding his, or her, time spent studying and the student's meetings with his, or her, committee members.

Step 6: The Preliminary Examination & Promotion to Candidacy.

The Preliminary Exam (or qualifying exam) is considered as one exam, with two parts. The information in the readings provided by the committee members will serve as the basis for the 2-part Preliminary Exam, both of which must be passed before moving on to Step 7.

All five members of the Advisory Committee must be present at the examinations. However, special arrangements for conference calls or videoconferencing are allowable in special cases, such as a committee member being out-of-town and/or on sabbatical. Students with committee members that are participating remotely are responsible for determining if the Associate Dean for Graduate Studies needs to provide written approval for this arrangement.

The Advisor will communicate the results of the Preliminary Examination by letter or e-mail to the Associate Chair for Graduate Studies and the Associate Dean for Graduate Studies in the College of Arts and Sciences.

The Written Exam (Part 1)

Purpose: The Written Qualifying Examination determines whether a student understands various biological processes and abstractions covered in the readings provided by the student's committee members, and is able to solve problems based on these concepts. Each member of the student's Advisory Committee will contribute a component of the written test. The precise format of the exam is to be determined and agreed upon by the Advisory Committee prior to administering the exam. As standard practice, however, it is recommended that the exam be given over a period of 5 days with the exams from each committee member being given on separate days. The entire exam must be completed within a one-week (7 day) period.

Timing: This exam will occur by the end of the third semester.

The Oral Exam (Part 2)

Purpose: The Oral Qualifying Examination tests the student's understanding of classic papers and fundamental concepts in his, or her, area of research emphasis. Mastery of this basic knowledge indicates a readiness of the student to proceed with original research. Normally, the Oral Exam will last 3 hours. All five members of the Advisory Committee must be present at the examination (note: special arrangements for conference call presence or videoconferencing are allowable in special cases, such as a committee member being out of town and/or on sabbatical). Students with committee members that are participating remotely are responsible for determining if the Associate Dean for Graduate Studies needs to provide written approval for this arrangement.

Timing: This exam will occur within 1 week of completing the Written Exam.

Criteria for Passing

For both portions of the exam (written & oral), students must demonstrate a working knowledge of their area of research emphasis, and an ability to respond appropriately to questions about their knowledge in a logical and poised manner. After the oral examination the committee members will vote on whether the student has passed the entire exam. More than one negative vote constitutes failure of the exam.

Failure of the Preliminary Exam

If a student fails the Preliminary Exam, they must repeat the examination in the next academic semester and are given an extra semester to complete the examination sequence without penalty. The Advisory Committee may, at its own discretion, choose to re-administer either the entire exam (both the entire written & entire oral exams) or only the entire oral exam.

Failure of the Preliminary examination a second time constitutes termination of the student's Ph.D. program. The student then may, at the discretion of the Graduate Committee, pursue a Masters degree.

Promotion to Candidacy

Promotion to candidacy is awarded by the student's Advisory Committee. Candidacy is dependent upon having an approved Program of Study, and passing the Preliminary Exam (i.e. the qualifying exam). Promotion to candidacy is communicated by the Faculty Advisor in a letter to the Associate Chair for Graduate Studies and the Associate Dean for Graduate Studies in the Eberly College of Arts and Sciences. **Once promotion to candidacy is awarded, doctoral students have no more than five years in which to complete the remaining degree requirements.**

Step 7: The Proposal Examination

The Proposal Exam is considered to be one exam, with two parts (the written proposal and the oral presentation).

All five members of the Advisory Committee must be present at the examinations. However, special arrangements for conference calls or videoconferencing are allowable in special cases, such as a committee member being out-of-town and/or on sabbatical. Students with committee members that are participating remotely are responsible for determining if the Associate Dean for Graduate Studies needs to provide written approval for this arrangement.

The Advisor will communicate the results of the Proposal Examination by letter or e-mail to the

Associate Chair for Graduate Studies and the Associate Dean for Graduate Studies in the College of Arts and Sciences.

The Written Proposal: The Written Proposal is a written plan of the student's proposed research project. A student's research project is selected in accordance with his, or her, interests and goals through consultation with the Advisor and the Advisory Committee. The Written Proposal is to be prepared with the assistance and guidance of the faculty Advisor. It should be written in a format comparable to that of a proposal to the NIH or NSF, and include: a statement of the problem to be researched, background information (including references to pertinent literature), proposed experiments, proposed methods of data analysis, and the expected significance of the work.

Purpose: The Written Proposal determines whether a student can formulate a coherent, convincing research plan.

Timing: The Written Proposal should be completed by the end of the 4th semester and **the final version should be submitted to the student's Advisory Committee no later than two weeks prior to the date of the oral presentation.**

The Oral Presentation: The Oral component of the Proposal Examination is a presentation of the student's research dissertation proposal as a seminar to the Biology faculty and graduate students. The student's Advisory Committee must be present and the Advisor is expected to remain silent during the public seminar. Following the public seminar, the student will meet with his, or her, advisory committee and answer questions concerning the proposed research.

Purpose: To determine whether the student is able to present and defend a research proposal before a group of scientists.

Duration: The seminar should last 50 minutes. The defense of the proposal to the advisory committee, following the seminar, should last 1-2 hours.

Timing: The seminar and its defense should take place within two weeks of submitting the written proposal to the Advisory Committee.

Criteria for Passing

The Written Proposal should be suitable for submission to the NSF as a dissertation improvement proposal, and will be judged on the basis of the student's understanding of the problem, its possible solutions, and its biological significance. If the proposal is funded by an agency equivalent to NIH or NSF (as determined by the Advisory Committee) prior to being evaluated by the student's committee, then this portion of this exam will be waived.

The oral presentation should be a competent professional presentation of the written proposal and the student should demonstrate a clear understanding of the research problem and its significance in the field as judged by responses to questions from the audience at the seminar and questions of the Advisory Committee after the seminar.

The student's Advisory Committee votes to determine if the student passes or fails. More than one negative vote constitutes failure of the examination.

Failure of the Proposal Exam

If a student fails the Proposal Exam, they must repeat the examination in the next academic semester and are given an extra semester to complete the examination sequence without penalty. The Advisory Committee may, at its own discretion, choose to re-administer the entire exam or only one portion (the written proposal or the oral presentation).

Failure of the proposal examination a second time constitutes termination of the student's Ph.D. program. The student then may, at the discretion of the Graduate Committee, pursue a Masters degree.

Step 8: Writing a Dissertation

The dissertation must demonstrate an ability to carry out independent research. Chapters of the dissertation should meet the standards required for publications in a reputable biological journal. The dissertation should include a short (2-10 page) Introduction that provides an overview of the individual chapters. Following the chapters, an Overall Conclusions section (also 2 - 10 pages) should summarize overall findings of the student's work and synthesize the conclusions from each chapter in a broader context.

The Dissertation is expected to be revised from the first writing, and may require several revisions before it is acceptable to the Advisor. **The draft approved by the Advisor must be given to the members of the Advisory Committee at least four weeks before the thesis defense.** If more than one committee member believes the dissertation is not ready for defense at the scheduled date, then the defense must be rescheduled for a later date. Additional revisions may be required following the defense.

Students are encouraged to write their dissertation chapters in the format necessary for submission to a primary journal in their field of study, as long as university requirements for formatting are met.

Step 9: The Dissertation Defense

The Dissertation defense is given only after all other requirements have been satisfied.

For the Ph.D., the Dean's office should be notified (using the "shuttle sheet request form") of the arrangements (time, place, & examining committee members) for the dissertation defense in accordance with the college deadlines for that semester. The defense is open to the public and should be held prior to the College deadline that is announced every semester. The format of the defense is an oral defense of the student's doctoral research. At least five committee members must be present for the defense (note: it is far preferable if all committee members are present for the defense; however, if out-of-town committee members cannot be present due to mitigating circumstances, videoconferencing or teleconferencing can be substituted). Students with committee members that are participating remotely are responsible for determining if the Associate Dean for Graduate Studies needs to provide written approval for this arrangement.

More than one unfavorable vote from the Advisory Committee constitutes failure, and all voting is done by secret ballot. Re-examination may not be scheduled without approval of the Associate Dean for Graduate Studies in the College of Arts and Sciences.

At the end of the examination, the Advisory Committee members must sign the "shuttle sheet" and a copy of the signed "shuttle sheet" is made for the Associate Chair for Graduate Studies. The original signed "shuttle sheet" is returned to the Associate Dean for Graduate Studies in accordance with the college deadlines for that semester. All members of the Advisory Committee should also sign the ETD signature page required by the library. This signature page should be held by the student's advisor until all corrections to the dissertation have been made to the satisfaction of his, or her, committee members.

The Advisor reports the results of the examination and acceptance of the dissertation to the Associate Chair for Graduate Studies and the Associate Dean for Graduate Studies in the College of Arts and Sciences within 24 hours of completion.

Step 10: Dissertation Seminar

A formal Departmental seminar must be given by the Ph.D. candidate on his, or her, research topic before graduation. This seminar is often, but not always, given immediately before the dissertation defense.

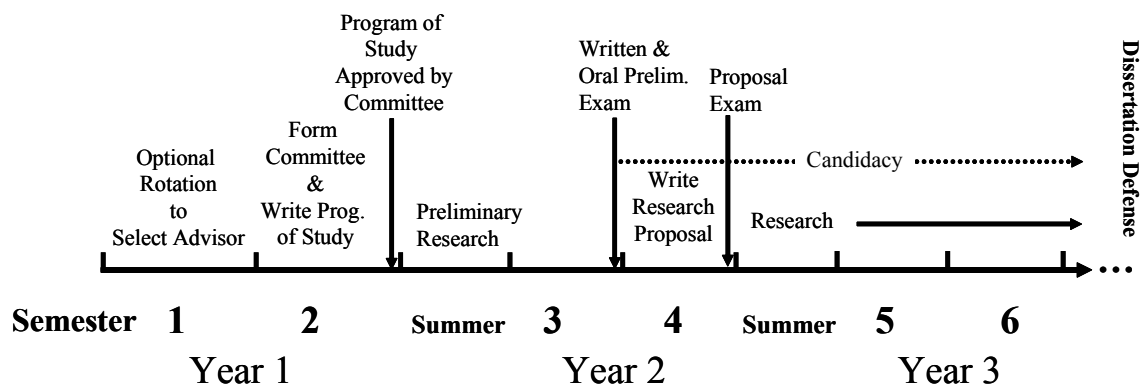
Step 11: Graduation

The student must satisfy all college and university requirements for graduation and it is the student’s responsibility to make appropriate arrangement as required. All requirements for graduation must be completed by the college deadlines that are announced every semester.

Some of these important requirements include:

- Completing the Application for Graduation and Diploma.
- Submitting Request Form for Shuttle Sheet, including all required signature.
- Submitting Thesis and Dissertation in proper format (note: electronic format now required).
- Registering for at least one (1) credit hour for the semester you graduate.
- Removal of incomplete grades for all classes.
- Submitted Plan of Study and approved Committee List.
- Completion of all courses and requirements.
- Status as a regular student.
- Thesis/Dissertation: Electronic submission, forms and fees must be accepted by the appropriate deadlines for a given semester.
- Completion of current semester.

Timeline for Ph.D. students



Adherence to Time Line and Consequences for Delay

Missing required deadlines is costly for the student, faculty advisor, and graduate program. The timelines have been designed to move students through their graduate careers in a timely manner and to ensure that exams are rigorous and meaningful.

The Associate Chair for Graduate Studies will assess the progress of each student once per year, immediately following the beginning of the Fall semester. If this assessment reveals that a student has missed a deadline on the timeline for his, or her, degree, the Associate Chair for Graduate Studies will inform the student and Advisor of this fact, and provide the student with

specific goals that must be completed within a specified time frame. If this goal cannot be met, then the student should write a letter of explanation to the Graduate Committee at least two weeks before the end of the specified time frame which: a) outlines the reasons they believe this goal is unattainable; and b) proposes an alternative timeline. The Graduate Committee will then make a decision, and may, at its option, grant a 1-semester grace period. Alternatively, the Graduate Committee will call for a meeting with the student and the student's advisor to discuss the student's future in the graduate program. Secondary appeals of such decisions to the Departmental Chair will be possible. This process applies to full-time, 'part time', and non-resident students in our Program.

Time Limits and Residence

The expected time to completion of the Ph.D. degree is 4-5 years, however all requirements for a graduate degree must be completed within a period of eight years, starting with the initial enrollment after the most recent degree. For regulations governing leaves of absence while in a Ph.D. program, see the University Graduate Catalog.

A graduate student who is not in residence on campus during the year must send to the Chairperson of the Graduate Committee, each year, a letter of intent to remain in the graduate program.

Two semesters of full-time association with the Biology Department Graduate Program at Morgantown will be considered to fulfill the residency requirements. It is possible to fulfill a part of this requirement as a student in some other academic situation if such an arrangement has prior approval by the Graduate Committee.

Changing Degree Programs

In general, the graduate program to which a student is admitted is committed to the training of that student through to completion of his, or her, program, as long as the student performs satisfactorily. For numerous possible reasons, a student and his, or her, advisor may, by mutual consent, agree that it would be best for the student to change from the Ph.D. program to the Masters program. To assure that such changes are implemented in a consistent and fair fashion, such changes are to be reviewed by the Graduate Committee, and require: (1) a letter from the student, explaining why this change is being requested, and (2) a separate letter from the advisor, doing likewise. The Graduate Committee will review these letters, along with the student's file, before acting on such requests.

Note: Changing from the Ph.D. to the Masters program carries with it a decrease in pay grade which will be effective in the semester following approval of the request to switch from the Ph.D. to the Masters program.

APPENDIX A. Roles of Personnel

Associate Chair for Graduate Studies – voted by faculty

- 1) *As an administrative advisor, signs registration materials of ALL graduate students that have not yet chosen a faculty Advisor.*
- 2) *Advises students concerning requirements of the graduate degree programs and channels student communications to the Graduate Committee and the Assistant Dean for Graduate Studies in the College of Arts and Sciences.*
- 3) *Receives and disseminates information from the Associate Dean for Graduate Studies in the College of Arts and Sciences.*
- 4) *Maintains graduate student records and files in the departmental office.*

Graduate Committee - appointed by the Departmental Chair

- 1) *Establishes, with departmental approval, criteria for selection and screening of graduate applications.*
- 2) *Admits applicants to the graduate program.*
- 3) *Maintains, reviews, and recommends to the Biology graduate faculty revisions of the graduate program.*
- 4) *Is empowered to waive the departmental rules upon written petition if circumstances warrant in specific instances.*
- 5) *Aids the incoming students in the choice of a faculty advisor.*
- 6) *May advise on first and second semester registration.*
- 7) *Considers petitions and appeals from graduate students.*

Advisor (Major Professor) - member of the graduate faculty, must hold a Ph.D.

- 1) *prepares with student the tentative program of study for review and acceptance by the Advisory Committee during the second semester of residence as a regular student*
- 2) *checks, along with student, that graduate requirements are fulfilled*
- 3) *directs research and the writing of the thesis or dissertation*
- 4) *serves as chairperson of the Advisory Committee. With the approval of the Advisory Committee, the faculty Advisor:*
 - a) *submits copies of the Program of Study approved by the student's advisory committee to the Associate Chair for Graduate Studies.*
 - b) *makes early judgment based on performance and initiative to determine if the student should continue in the program.*
 - c) *conducts the preliminary examinations for his, or her, Ph.D. students.*
 - d) *informs the Associate Dean for Graduate Studies in the College of Arts and Sciences, the*

Associate Chair for Graduate Studies, and the student of passing examination results and promotion to candidacy in the Ph.D. program.

e) sends the Associate Chair for Graduate Studies the performance recommendations of the Advisory Committee in the M.S. and Ph.D. degree programs.

f) sends the Associate Chair for Graduate Studies a copy of the signed "shuttle sheet" and returns the original "shuttle sheet" to the Associate Dean for Graduate Studies in the College of Arts and Sciences.

Advisory Committee - selected by mutual agreement of student and Advisor

1) Works with the student to determine if the tentative Program of Study is adequate; when acceptable, the Committee approves the program.

2) Reviews progress of student periodically.

3) Participates in the written and oral examinations in the Ph.D. program.

4) Promotes the student in the Ph.D. program to candidacy after all conditions are met.

5) Participates in the proposal examinations in the Ph.D. program.

6) Reviews critically the thesis or dissertation after it has been approved by the faculty Advisor. The thesis or dissertation must be explicitly approved by the advisory committee before final examination can be scheduled.

7) Participates in the Dissertation Defense, and signs final examination report ("shuttle sheet") and copies of the signature page for the thesis or dissertation.

Graduate Students

Both M.S. and Ph.D. students are pursuing research-based degrees. Students are expected to make steady progress toward their degree goal in accordance with the time lines in this handbook. Early completion of any of the steps en route to this goal is encouraged. Graduate students are expected to maintain the highest of ethical standards in the conduct of their research.

It is the responsibility of the student to be aware of and meet all required college and departmental deadlines. Students are responsible for making arrangements for the dissertation defense after the advisory committee has explicitly approved the thesis or dissertation. Students must also arrange for, and announce, the date, place, and time of the dissertation defense to the advisory committee and members of the department.

Assisting in the Department's teaching program is both a service to the department and training for a future career. The reputation of the department depends to a large extent on the activities of its teaching assistants. Thus, the teaching should be performed in a professional manner and the evaluation of students conducted fairly. The teaching assistant is considered a part of the teaching staff of the department. He/she is, therefore, subject to the same rules and ethics as the faculty.

The voice of the graduate students in departmental matters depends on the degree to which graduate students wish to be involved. The faculty welcome suggestions and recommendations from graduate students, especially when presented through a graduate student organization. These will receive serious consideration and attempts will be made to address problems. A graduate student representative is welcome at open faculty meetings and may be requested to

serve on committees concerning graduate student affairs.

APPENDIX B. Format for Program of Study

Program of Study for M.S./Ph.D. in Biology

Name:

Student Number:

Date of Admission:

Probable date of degree:

Present Degree/University:

Local Address:

Local Phone:

GRE Score/Percentile (Taken ???):

Verbal:

Quantitative:

Analytical Writing

Advisory Committee:

Chairperson:

Tentative Dissertation Title:

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Program of Study

Past College-Level Coursework at ??? University

Course	Title	Instructor	Year	Semester	Grade	Credit

WVU Graduate Courses (Taken & Planned)

Course	Title	Instructor	Year	Semester	Grade	Credit

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Research Proposal (5 pages single-spaced maximum); include Introduction, Methods, Data Analysis, Expected Results, Expected Significance, and References Cited. The references cited are not included in the 5-page limit

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This program of study for _____ has been approved by:

_____ date _____

Committee Member 1, Ph.D. from ??? University

_____ date _____

Committee Member 2, Ph.D. from ??? University

_____ date _____

Committee Member 3, Ph.D. from ??? University

_____ date _____

Committee Member 4, Ph. D. from ??? University

_____ date _____

Committee Member 5, Ph.D. from ??? University

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Qualifications of committee members not on the faculty of WVU.

As of November 2008, the College requires that the program of study (a.k.a. the plan of study) include documentation regarding the qualifications of graduate examining committee members who are not members of the faculty at WVU.

Following the signature page, please include a brief statement of the qualifications of any of your committee members who are not members of the WVU faculty.