Biology, Ph.D.

Doctor of Philosophy

Degree Requirements

- **Credit Hours:** Students are required to complete a minimum of 37 graduate credit hours in Biology and/or related areas at the 400 level or above.
- **Grade Point Average:** Students must earn a minimum cumulative GPA of 2.75, and a GPA of 3.00 in all coursework applied to their graduate program.
- **Program of Study:** The Program of Study is a written document consisting of two parts: 1) an outline of past, present, and future coursework 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.
- **Comprehensive Examination:** The Comprehensive or Preliminary Exam has two parts, the written and an oral. The Written Examination determines whether students understand 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. The Oral Qualifying Examination tests students’ understanding of classic papers and fundamental concepts in their area of research emphasis. Mastery of this basic knowledge indicates a readiness to proceed with original research.
- **Proposal Exam:** The Proposal Exam has a written and oral component and is used to determine whether students can formulate a coherent, convincing research plan.
- **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. Ph.D. Candidates must present a formal Departmental seminar on their research topic as part of their graduation requirements.
- **Progress toward completion:** At the beginning of each academic year, students are evaluated by the department to insure timely progress in their degree programs. Students must adhere to the following timeline:
  - Year 1: Form a committee and present the program of study.
  - Year 2: Complete the Comprehensive and Proposal exams.
  - Year 3: Conduct dissertation research.
- **Additional Requirements:**
  - A minimum of 2 semesters of Teaching Practicum
  - All Ph.D. students must register for, and attend, the graduate seminar (BIOL 796) every Fall semester while they are in residence. A maximum of 3 hours of BIOL 796 can be counted towards the 37-hour coursework requirement.
  - All Ph.D. students are required to register for and attend BMS 700 Scientific Integrity (1 credit hour) or like course and a minimum of 2 additional credit hours of professional development
  - Graduate students are expected to attend Departmental Seminars (BIOL 794 Seminar) 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 degree program.

For complete guidelines, please see the graduate student handbook at https://biology.wvu.edu/students/graduate-students/forms-and-policies (https://biology.wvu.edu/students/graduate-students/forms-and-policies/).

Curriculum Requirements

Minimum GPA of 3.0 is required.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Biology Coursework at the 400 level or above</td>
<td>18</td>
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<tr>
<td>Research</td>
<td>6</td>
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<tr>
<td>BIOL 797 Research (Repeated)</td>
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<tr>
<td>Graduate Professional Development Seminars</td>
<td>6</td>
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<tr>
<td>BIOL 796 Graduate Seminar (Repeated each Fall)</td>
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<tr>
<td>BMS 700 Scientific Integrity</td>
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<tr>
<td>Professional development courses (2 cr. min) selected with the graduate advisor</td>
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<tr>
<td>Departmental Seminars</td>
<td>5</td>
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<tr>
<td>BIOL 794 Seminar</td>
<td></td>
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<tr>
<td>Teaching Practicum</td>
<td>2</td>
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<tr>
<td>BIOL 790 Teaching Practicum</td>
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</tr>
<tr>
<td>Total Hours</td>
<td>37</td>
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Major Learning Outcomes

BIOLOGY

The graduate programs in the Department of Biology provide rigorous training in several fields of biology. The central mission of our graduate program is to train the next generation of Biologists for careers in the field, laboratory and several other professional settings that rely on deep expertise in the biological sciences.

Students earning Ph.D. in Biology will be able to:

• Explain general and advanced biological principles as well as those specific to their research sub-discipline
• Critically evaluate and demonstrate fluency with the literature published within their field
• Independently generate testable hypotheses based on preliminary data and literature reviews
• Design and execute experiments and provide quality data, analysis and interpretation, critical to progress in their research area
• Effectively communicate their research in oral and written formats, including the ability to write and revise manuscripts suitable for publication in peer reviewed scientific journals, conference abstracts, and grant proposals
• Learn and apply the role of ethics in personal and professional behavior
• Learn and apply best laboratory practices (i.e. proper laboratory safety procedures and experimental protocols)