ZOOLOGY, PH.D.

The Zoology Graduate Program provides training in the following broad subject areas: cellular and molecular biology, developmental biology, neuroscience, physiology, ecology, evolution, and animal behavior. There is great flexibility in our graduate program to serve the diverse scholarly interests and cultures in the Department of Integrative Biology. Each student’s course of study is tailored to his or her individual interests, career goals, and needs, and we admit students with diverse academic backgrounds. The path taken by a student results from a deliberative process that involves discussions between the student and the student’s advisor and advisory committee.

The Department of Integrative Biology faculty strongly believes that graduate education should be distinguished from undergraduate education in recognition of individuality and emphasis on responsibility in graduate students. This philosophy requires flexibility and is not well served by the imposition of many formal requirements to be met by all students. Rather, more emphasis is placed on the role of advisory committees in devising programs of breadth and depth appropriate for individual students with due regard to areas outside of biology which are important for the student’s effectiveness in their chosen field.

JOINT DEGREE

Doctoral students may elect a joint degree (two programs) which combines zoology with another biological program. The requirements for such candidates will be determined by the certification committee (which includes members of both programs) in accordance with regulations established by the Graduate School.

FACILITIES

Facilities and staff are available for advanced study in a wide variety of biological fields including aquatic and terrestrial ecology, conservation biology, cell/molecular/developmental and neurobiology, endocrinology, ethology, genetics, evolution and systematics, comparative physiology, and physiological ecology.

In addition to a broad range of well-equipped laboratories, research facilities include advanced microscopy facilities (http://www.microscopy.wisc.edu/), limnological laboratories on campus (Lake Mendota) and in northern Wisconsin (Trout Lake), the University Arboretum, the Zoological Museum, and a Molecular Systematics Laboratory.

ADMISSIONS

Please consult the table below for key information about this degree program’s admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program’s website. Graduate admissions is a two-step process between academic programs and the Graduate School. Applicants must meet the minimum requirements (https://grad.wisc.edu/apply/requirements/) of the Graduate School as well as the program(s).

Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/apply/).

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Deadline</td>
<td>December 1</td>
</tr>
<tr>
<td>Spring Deadline</td>
<td>September 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRE (Graduate Record Examinations)</td>
<td>Required</td>
</tr>
<tr>
<td>English Proficiency Test</td>
<td>Required</td>
</tr>
<tr>
<td>Other Test(s) (e.g., GMAT, MCAT)</td>
<td>n/a</td>
</tr>
<tr>
<td>Letters of Recommendation Required</td>
<td>3</td>
</tr>
</tbody>
</table>

Graduate students who have a teaching or research assistantship of at least a 33.3% appointment (approximately 13.3 hours per week) during the fall or spring semester are eligible to receive remission of full tuition. Fellowships that are payrolled through the university and that carry stipends equivalent to at least a 33.3% research assistantship also qualify for remission of non-resident tuition. Tuition remission is conditionally awarded at the start of the semester based on the student's effectiveness in their chosen field.

FUNDING

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

GRADUATE SCHOOL RESOURCES

Financial support is available to qualified graduate students in the form of teaching assistantships, research assistantships, and fellowships.

Program Resources

Graduate students who have a teaching or research assistantship of at least a 33.3% appointment (approximately 13.3 hours per week) during the fall or spring semester are eligible to receive remission of full tuition. Fellowships that are payrolled through the university and that carry stipends equivalent to at least a 33.3% research assistantship also qualify for remission of non-resident tuition. Tuition remission is conditionally awarded at the start of the semester based on the student's effectiveness in their chosen field.
expectation that actual earnings during the semester will be at least 33.3% of the full-time rate.

All students pay segregated fees. The only exception is that fellowships paid through the Graduate School have segregated fees waived in addition to tuition. Segregated fees are approximately $630/semester and are used for campus overhead to help pay for the exercise facilities, student unions, student organization funding, etc.

Assistantships and fellowships also provide eligibility for an excellent health insurance program, an extremely valuable benefit that provides single or family coverage that is more comprehensive than individuals can usually purchase on their own. Additionally, assistantships and fellowships provide a stipend for living expenses.

TEACHING ASSISTANTSHIPS
The most common source of support is a teaching assistantship. To receive a teaching assistantship, candidates for admission must meet the following requirements:

- evidence (usually from the undergraduate transcript) of an appropriate background in the relevant subject matter of the course(s) to which appointment is being considered;
- evidence (usually from letters of recommendation or verbal communication) of the candidate's potential as a teaching assistant;
- an undergraduate GPA of 3.0 or above (on a 4.0 scale); and
- for students whose native language is not English, evidence of competence in spoken English through the SPEAK test that is administered by UW–Madison. International applicants should note that a TA appointment is not normally possible during the first year of graduate study.

Current students who apply for their first teaching assistantship are also subject to the above criteria, as well as their performance as a graduate student. Reappointment as a teaching assistant depends upon satisfactory progress as a graduate student, satisfactory performance as a teaching assistant, and completing the Equity/Diversity TA Training.

Teaching assistants may be eligible for UW–Madison teaching awards (https://grad.wisc.edu/tawaWARDS/), including the Early Excellence in Teaching Award, Exceptional Service Award, Innovation in Teaching Award, Capstone Ph.D. Teaching Award, and the College of Letters & Science Teaching Fellow Award.

RESEARCH ASSISTANTSHIPS
Research assistantships are made possible by grants awarded to faculty for particular research programs. Recipients are selected by the individual professor concerned, and the student’s interests and experience must match the needs of the funding project. Availability of research assistantships varies.

ADVANCED OPPORTUNITY FELLOWSHIPS
Advanced Opportunity Fellowships (AOF) are granted to the UW–Madison Graduate School by the State of Wisconsin and are combined with other graduate education funds to support the recruitment and retention of highly qualified underrepresented students in UW–Madison graduate programs. Fellowships are competitive and merit-based. AOF funding is intended to increase the racial and ethnic diversity of the graduate student population, as well as to support economically disadvantaged and first generation college students. AOF fellowships are paid through the Graduate School by the College of Letters & Science's Community

EXTERNAL FELLOWSHIPS
Fellowships from professional societies and outside agencies provide another important source of aid for which students may apply either before or after commencing graduate work at UW–Madison. If necessary, external fellowships can often be supplemented with university funds up to prevailing university fellowship rates.

All qualified students who are US citizens or permanent residents are urged to apply to the National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP). Students apply directly to NSF; the closing date is usually in early November. Please check the NSF (http://www.nsf.gov/) website for the application instructions and deadline.

MINIMUM GRADUATE SCHOOL REQUIREMENTS
Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Mode of Instruction Definitions

- **Evening/Weekend**: These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.
- **Online**: These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.
- **Hybrid**: These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.
- **Accelerated**: These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.

CURRICULAR REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>51 credits</td>
</tr>
<tr>
<td>Credit</td>
<td></td>
</tr>
<tr>
<td>Requirement</td>
<td></td>
</tr>
</tbody>
</table>
They present their graduate research.

All students must hold a departmental seminar in which they serve as a teaching assistant for a minimum of one semester. All students must hold a departmental seminar in which they present their graduate research.

Graduate students are required to serve as a teaching assistant for a minimum of 15 credits.

The Preliminary Examination (defense of research project) should be completed and the prelim warrant submitted by the end of the sixth semester. Note that in addition to passing the prelim exam, students must have completed 32 credits, clear all incomplete or Progress grades in nonresearch courses, complete all minor requirements and earn at least a cumulative 3.000 GPA in order to be granted dissertator status. The preliminary defense warrant must be requested from the department.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

Every graduate student is required to have an advisor and a committee. To ensure that students are making satisfactory progress toward a degree, every student is required to meet with the advisor and committee annually to review progress. If a progress report has not been filed by April 1, a hold will be placed on student course registration.

It is expected that a Ph.D. student will defend the dissertation by the end of the fifth academic year. If this is not accomplished by the end of the summer following the sixth academic year, the student’s mentor must present a written statement to the Director of Graduate Studies that

This is a program of the University of Wisconsin–Madison.

Zoology, Ph.D.

GRADUATE SCHOOL POLICIES

The Graduate School’s Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy/) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

PRIOR COURSEWORK

Graduate Work from Other Institutions
With committee approval, students are allowed to count no more than 19 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committees will choose to cap coursework from another institution at a lower level than 19 credits, but this is a committee decision to be made on a case-by-case basis.

UW–Madison Undergraduate
With committee approval, students are allowed up to 7 credits numbered 300 or above from their UW–Madison undergraduate career to fulfill graduate requirements. Typically committees will choose to cap coursework allowed from undergraduate careers at a lower level than the 7 allowed, but this is a committee decision to be made on a case-by-case basis.

UW–Madison University Special
With committee approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committee members will choose to cap the number of coursework taken as a University Special student at a lower level, but this is a committee decision to be made on a case-by-case basis.

PROBATION

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

ADVISOR / COMMITTEE

Every graduate student is required to have an advisor and a committee. To ensure that students are making satisfactory progress toward a degree, every student is required to meet with the advisor and committee annually to review progress. If a progress report has not been filed by April 1, a hold will be placed on student course registration.

CREDITS PER TERM ALLOWED

15 credits

TIME CONSTRAINTS

It is expected that a Ph.D. student will defend the dissertation by the end of the fifth academic year. If this is not accomplished by the end of the summer following the sixth academic year, the student’s mentor must present a written statement to the Director of Graduate Studies that

REQUIREDS COURSES

Ph.D. students must take courses and seminars to fulfill required research credits. Specific Zoology courses (http://guide.wisc.edu/courses/zoology/) are approved by the student’s advisor or advisory committee and depend on the student’s research area, interests, and goals. In keeping with the diverse areas of research and training for students in Zoology, students may additionally take any courses outside of Zoology that have been identified as graduate-level to meet this requirement.

All students are required to serve as a teaching assistant for a minimum of one semester. All students must hold a departmental seminar in which they present their graduate research.

Other Grade Requirements
An average record of B or better in all work taken as a graduate student is required by the Department of Integrative Biology (grades of P and S are for this purpose considered to be satisfactory at the B level; grades of Incomplete are considered for this purpose to be unsatisfactory if they are not removed during the following semester of residence).

Assessments and Examinations
In the second semester of the first year, students must complete the Certification of Candidate for a Ph.D. Degree. By the end of the fourth semester, students must complete the qualifying examination and return the signed qualifying examination form to the department.

The preliminary examination (defense of research project) should be completed and the prelim warrant submitted by the end of the sixth semester. Note that in addition to passing the prelim exam, students must have completed 32 credits, clear all incomplete or Progress grades in nonresearch courses, complete all minor requirements and earn at least a cumulative 3.000 GPA in order to be granted dissertator status. The preliminary defense warrant must be requested from the department.

Defense of the Ph.D. usually occurs after the tenth semester. A final defense warrant must be requested from the department.

Language Requirements
To be determined by the advisory committee.

Doctoral Minor/Breadth Requirements
All doctoral students are required to complete a minor.

BrowseByTitle/
explains why the Ph.D. has not been completed and describes plans that the student and the student’s advisory committee have agreed upon to ensure completion, including specific expectations, dates for completion, and consequences should expectations not be met. Continuation in the program beyond eight years will be at the discretion of the mentor and advisory committee. Ten years is the outside limit by which a student must complete the Ph.D. degree.

It is up to the student’s committee to determine whether or not a student who has been absent for five or more consecutive years will lose the credit earned before the absence; that coursework may not count toward Graduate School credit requirements.

GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (https://doso.students.wisc.edu/bias-or-hate-reporting/)
- Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/#grievance-procedure)
- Hostile and Intimidating Behavior Policies and Procedures (https://hr.wisc.edu/hib/)
  - Office of the Provost for Faculty and Staff Affairs (https://facstaff.provost.wisc.edu/)
  - Dean of Students Office (https://doso.students.wisc.edu/) for all students to seek grievance assistance and support
- Employee Assistance (http://www.eao.wisc.edu/) for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (https://employeedisabilities.wisc.edu/) for qualified employees or applicants with disabilities to have equal employment opportunities
- Graduate School (https://grad.wisc.edu/) for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions
- Office of Compliance (https://compliance.wisc.edu/) for class harassment and discrimination, including sexual harassment and sexual violence
- Office of Student Conduct and Community Standards (https://conduct.students.wisc.edu/) for conflicts involving students
- Ombuds Office for Faculty and Staff (http://www.ombuds.wisc.edu/) for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (https://compliance.wisc.edu/titleix/) for concerns about discrimination

Students should contact the department chair or program director with questions about grievances.

OTHER

There is great flexibility in our graduate program to serve the diverse scholarly interests and cultures in the Department of Integrative Biology. The path taken by a student results from a deliberative process that involves discussions between the student and the student's advisor and advisory committee. The department's policy is to only accept students that can be financially supported by teaching assistantships, research assistantships, and/or fellowships.

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School’s professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.

DEPARTMENT RESOURCES

A goal for our graduate program is to provide students in Zoology with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, government, science policy and administration, science commerce, science writing, law, and science education and outreach at all levels). In consultation with the student’s advisor and advisory committee, students can engage in professional development, teaching training (e.g., through the Delta program), internships in industry, science writing, and/or policy, and some earn master's degrees in areas that complement their studies in Zoology (e.g., biostatistics, biotechnology).

LEARNING OUTCOMES

1. Demonstrate academic mastery in at least one of the broad subject areas represented in the Department of Integrative Biology.
2. Demonstrate a broad understanding of major current and past theories, research findings, and methodologies and techniques in their area of concentration both orally and in writing.
3. Develop critical thinking skills. They will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, and develop conclusions.
4. Develop and complete original research that advances a specific field of study within one of the broad subject areas represented in the Department of Integrative Biology.
5. Retrieve, evaluate, and interpret professional scientific literature and use this information to develop theoretical frameworks, testable hypotheses, and predictions for their own research projects.
6. Design realistic and feasible research projects and prepare necessary protocols.
7. Conduct independent research and analyze and interpret resulting data.
8. Prepare and submit manuscripts resulting from their independent research for publication in professional, peer-reviewed journals.
9. Effectively communicate to diverse audiences in writing, through oral presentations, and discussions.
10. Write clear and concise research articles for publication in professional, peer-reviewed journals.
11. Present at scientific conferences and/or in formal and informal seminars.
12. Learn methods of communication needed to interact with professional colleagues and to request grant support.
13. Present research articulately and informatively to diverse audiences.
14. Give and receive feedback orally and in writing.
15. Have with opportunities to engage in public outreach and education.
16. Effectively teach topics or research methods in cellular and molecular biology; developmental biology; neuroscience; physiology; ecology; evolution; or animal behavior.

17. Receive training and serve as teaching assistants for at least one semester.

18. Have with opportunities to mentor others in a laboratory or research setting.

19. Have an understanding of professional and ethical responsibility.

20. Trained to use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.

21. Trained in the ethics of publishing.

22. Know and adhere to laws, regulations, needed permits and licenses, occupational health and safety standards.

23. Provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, government, science policy and administration, science commerce, science writing, law, and science education and outreach at all levels).

24. Develop broadly applicable skills in critical thinking and problem solving.

25. Have opportunities to develop skills in leadership, project management, teamwork, and communication and to develop collaborations with nonacademic partners.

PEOPLE

FACULTY

Professors Hardin (chair, jdhardin@wisc.edu), Bement, Blair, Damschen, Gammie, Halloran, Ives, Lee, Newmark, Orrock, Riters, Stanley, Turner, and Vander Zanden

Associate Professors Amann and Grinblat

Assistant Professors Dugan and Sharma

AFFILIATED FACULTY

Professors Auger, Currie, Fernandez, Gratton, Hawks, Karasov, Lindroth, Marler, Payseur, and Strier

Associate Professors Hittinger and Pool

Assistant Professors McFarland and Schoville