ZOOLOGY, PH.D.

The Department of Integrative Biology offers graduate work leading to the master of arts or the master of science and the doctor of philosophy in zoology. Facilities and staff are available for advanced study in a wide variety of zoological 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.

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.

FUNDING

Financial support may be provided through a limited number of teaching and research assistantships and by federal, industrial, and privately sponsored fellowships and traineeships. Graduate student support is available to all accepted graduate students and will be determined before arrival on campus.

REQUIREMENTS

MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

DOCTORAL DEGREES

Ph.D.

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

26 credits

At least 50% of credits applied toward the graduate degree credit requirement.

PRIOR COURSEWORK REQUIREMENTS: 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 five or more years prior to admission to a master's degree or 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.

PRIOR COURSEWORK REQUIREMENTS: 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.

PRIOR COURSEWORK REQUIREMENTS: 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 five or more years prior to admission to a master's degree or 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.

CREDITS PER TERM ALLOWED

15 credits

PROGRAM-SPECIFIC COURSES REQUIRED

Required coursework is determined for each student individually by the student's advisory committee.

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 to present their graduate research.

DOCTORAL MINOR/BREADTH REQUIREMENTS

All students must either have a declared and named minor or a distributed minor.

OVERALL GRADUATE GPA REQUIREMENT

3.00

OTHER GRADE REQUIREMENTS

An average record of B or better in all work taken as a Graduate Student is required by the Department of Zoology (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).

PROBATION POLICY

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 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.

At the department level, the chair, in consultation with the major professor and advisory committee, may determine that a student’s progress is unsatisfactory and so report to the faculty in closed session. If, after faculty review, the chair’s determination is considered justified, the student will be notified that tenure in the department is to be terminated at the end of the semester. If the student disagrees with the judgment of the faculty, it shall be the students responsibility to show cause as to why the faculty’s opinion is not justified. Any student who is judged wanting in sufficient progress will be granted one additional probationary semester, at the end of which continuation in Graduate School will be denied unless by extraordinary initiative and application the student is able to persuade the faculty to reverse their decision.

**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 May 1, a hold will be placed on student course registration.

**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 3.0 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.

**TIME CONSTRAINTS**

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.

**LANGUAGE REQUIREMENTS**

To be determined by the advisory committee.

**ADMISSIONS**

The department will accept applicants who have an adequate background for advanced work in one or more of the subdisciplines listed above and for whom a faculty member is willing to serve as major professor. In addition to the Graduate School application, all applicants must submit GRE scores, at least 3 letters of recommendation, a personal statement including areas of research interest and the names of prospective faculty advisors, a CV/resume, official transcripts from all undergraduate and graduate schools attended, and a calculation of the undergraduate GPA for the last 60 hours of undergraduate work. See the admissions page on the zoology website for more specific instructions regarding application requirements. The annual admission application deadline is December 1st.

The department 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 the chosen field.

**LEARNING OUTCOMES**

**KNOWLEDGE AND SKILLS**

**KNOWLEDGE**

- Demonstrate academic mastery in at least one of the broad subject areas represented in the Department of Zoology.
- Students will 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.
- Students will 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.

**RESEARCH**

- Students will develop and complete original research that advances a specific field of study within one of the broad subject areas represented in the Department of Zoology.
- Students will retrieve, evaluate, and interpret professional scientific literature and use this information to develop theoretical frameworks, testable hypotheses, and predictions for their own research projects.
- Students will design realistic and feasible research projects and prepare necessary protocols.
- Students will conduct independent research and analyze and interpret resulting data.
- Students will prepare and submit manuscripts resulting from their independent research for publication in professional, peer-reviewed journals.

**COMMUNICATION**

- Effectively communicate to diverse audiences in writing, through oral presentations, and discussions.
- Students will write clear and concise research articles for publication in professional, peer-reviewed journals.
- Students will present at scientific conferences and/or in formal and informal seminars.
- Students will learn methods of communication needed to interact with professional colleagues and to request grant support.
- Students will present research articulately and informatively to diverse audiences.
- Students will give and receive feedback orally and in writing.
• Students will have with opportunities to engage in public outreach and education.

TEACHING
• Effectively teach topics or research methods in cellular and molecular biology; developmental biology; neuroscience; physiology; ecology; evolution; or animal behavior.
• Students will receive training and serve as teaching assistants for at least one semester.
• Students will have opportunities to mentor others in a laboratory or research setting.

PROFESSIONAL CONDUCT

ETHICAL CONDUCT
• Students will have an understanding of professional and ethical responsibility.
• Students will be trained to use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.
• Students will be trained in the ethics of publishing.
• Students will know and adhere to laws, regulations, needed permits and licenses, occupational health and safety standards.

CAREER PREPARATION
• Students will be 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).
• Students will develop broadly applicable skills in critical thinking and problem solving.
• Students will have opportunities to develop skills in leadership, project management, teamwork, and communication and to develop collaborations with nonacademic partners.

PEOPLE

Faculty: Professors: Hardin (chair), Bement, Blair, Carpenter, Engels, Epstein, Fernandez, Gammie, Goldberg, Halloran, Ives, Karasov, Lee, Lindroth, Marler, Porter, Riters, Stanley, Stretton, Strier, Turner, Vander Zanden; Associate Professors: Amann, Auger, Bleiweiss, Brunet, Currie, Damschen, Gratton, Grinblat, Hawks, Lee, Orrock; Assistant Professors: Coen, McIntyre, Payseur, Peery, Pool, Sharma, Wolman