

Doctor of Philosophy in Ecology and Evolutionary Biology

Ecology and Evolutionary Biology Graduate Programs

The department comprises a large number of biologists with a variety of research interests. 3 broad overlapping themes capture the interests and activities in EEB — biodiversity and macroevolution, ecology and global change biology, and evolutionary mechanisms. The department offers graduate study leading to Master of Arts and Doctor of Philosophy degrees in ecology and evolutionary biology. General information about the department and its faculty, current graduate students, admission, and financial support may be found on the EEB website (<https://eeb.ku.edu/>).

Neotropical biodiversity is a special area of concentration among EEB faculty. Many faculty members have courtesy appointments in the Latin American Area Studies Program, which fosters multidisciplinary research in Latin America across the campus. KU is a member of the Organization for Tropical Studies, and many faculty members and students participate in advanced, field-oriented OTS courses. Graduate students can receive fellowships for courses, e.g. BIOL 786 Fundamentals of Tropical Biology, or research projects in Costa Rica. Other EEB faculty have research concentrations in Asia, Africa, Antarctica, and elsewhere, creating a genuinely global reach for EEB research activities.

(B.A. and B.S. degree programs in biology are listed under Biology Undergraduate Programs (<https://catalog.ku.edu/liberal-arts-sciences/biology/>).

Admission to Graduate Studies

An applicant seeking to pursue graduate study in the College may be admitted as either a degree-seeking or non-degree seeking student. Policies and procedures of Graduate Studies govern the process of Graduate admission. These may be found in the Graduate Studies (<https://catalog.ku.edu/graduate-studies/>) section of the online catalog.

Please consult the Departments & Programs (<https://catalog.ku.edu/liberal-arts-sciences/>) section of the online catalog for information regarding program-specific admissions criteria and requirements. Special admissions requirements pertain to Interdisciplinary Studies degrees, which may be found in the Graduate Studies section of the online catalog.

Graduate Admission

The departmental graduate admissions committee reviews the record of each applicant. Admission is based on background, preparation, test scores, and academic performance. The committee considers each candidate's overall undergraduate record in the context of the institution(s) from which the record was received. A graduate student should have a broad undergraduate background in natural science and math, including calculus, physics, chemistry, organismal biology, genetics, ecology, and evolutionary biology. Faculty recommendations, honors, awards, undergraduate research experience, publications, and professional experience also are considered. Enthusiasm, scientific expertise, and clarity of writing as evidenced by the applicant's essay are particularly important.

The master's degree is not a prerequisite for entering a Ph.D. program. Non-native speakers of English must meet English proficiency requirements as described on the English Proficiency Requirements policy (<https://policy.ku.edu/graduate-studies/english-proficiency-international-students/>). For more details on admission requirements, visit the EEB website (<https://eeb.ku.edu/>).

Applicants are encouraged to seek a faculty sponsor through correspondence with one or more faculty members prior or during the application process. Prospective doctoral students who would prefer to do rotations with two or three faculty members in their first year should indicate a general field of interest and a short list of prospective faculty mentors on their application. Interested students are encouraged to visit campus to meet faculty members and graduate students. Graduate school is critically important in beginning a career, and the choice of a program in which to enroll should be made carefully.

The number of students admitted is limited. Qualified candidates may be denied admission because of lack of a faculty sponsor, financial support, or research facilities.

Applications and supplemental materials may be submitted online. Applications from underrepresented groups are encouraged. For a detailed description of the application process, visit the EEB website (<https://eeb.ku.edu/>). All application requirements, including the deadline for application receipt, can be found on the EEB Admissions (<https://eeb.ku.edu/how-apply/>) page. Only complete applications are considered. Send inquiries to the graduate academic advisor listed on the EEB Staff (<https://eeb.ku.edu/staff/>) page.

Ph.D. Degree Requirements: Ecology and Evolutionary Biology Required Course Work

Most course work requirements for EEB graduate students are identified during the student's preliminary advisory meeting. Students are expected to take graduate-level courses (or have equivalent knowledge) in ecology, evolution, and systematics. A student's advisory committee may add course requirements to a student's degree program during annual meetings. Listed below are specific course requirements for all doctoral students in the EEB department:

1. Students must complete BIOL 805 Scientific Integrity in Ecology and Evolutionary Biology during the first year of graduate education in the fall semester. They are expected to attend departmental seminars in subsequent semesters.
2. Students must complete the BIOL 801 Core Topics in Current EEB Research seminar course during the first year of graduate study in the spring semester.
3. Students must complete a graduate-level course in statistics, typically fulfilled by completing BIOL 841 Biometry I. Alternatively, students may demonstrate equivalent background knowledge.
4. Students pursuing the doctorate must complete at least 1 credit hour of BIOL 999 Doctoral Dissertation.

Assistantships

Doctoral students must complete at least 2 semesters of half-time supervised teaching, curatorial, or research assistantships. Alternative experiences may be approved by the student's advisory committee.

Research Skills and Responsible Scholarship

All students aspiring to the Ph.D. are required by the Office of Graduate Studies to respond to the need for training in Research Skills and Responsible Scholarship (see the Research Skills and Responsible Scholarship requirement policy (<https://policy.ku.edu/graduate-studies/research-skills-responsible-scholarship/>) for additional details). As such, requirements in EEB include training in responsible scholarship (BIOL 805 Scientific Integrity in Ecology and Evolutionary Biology). In addition, students must develop, in consultation with their preliminary advisory committees, a list of additional research skills that will be necessary for successful completion of the doctoral program; these skills may include fluency in English (if not the native language); fluency (reading or speaking) in other foreign languages; and skills such as scientific illustration, phylogenetic methods, genomic analysis, geographic information systems, advanced mathematics and statistics, computer programming, biochemical analyses, advanced microscopy, and others. These research skills will be determined initially by the student's Preliminary Advisory Meeting and Research Advisory committees, with the potential for modification as specific dissertation plans evolve, proposed in a letter to the graduate academic advisor of the department, and approved by the Graduate Program Committee; successful fulfillment will be determined by the student's Research Advisory Committee, documented in a letter to the graduate academic advisor of the department.

Note: Contact your department or program for more information about research skills and responsible scholarship, and the current requirements for doctoral students. The policy on Doctoral Research Skills and Responsible Scholarship (<https://policy.ku.edu/graduate-studies/research-skills-responsible-scholarship/>) should be viewed for more details.

Engagement and Enrollment in Doctoral Programs

Graduate Studies requires all doctoral students to complete 2 semesters of full-time study at KU or the equivalent spread over several part-time semesters prior to the semester in which the Comprehensive Oral Examination is held. See the Engagement and Enrollment in Doctoral Programs policy (<https://policy.ku.edu/graduate-studies/engagement-enrollment-doctoral-programs/>) for complete details.

Comprehensive Oral Examination

The comprehensive oral examination tests the depth and breadth of the student's knowledge and explores the student's ability to synthesize information and think critically. The examination should include, but is not limited to, questions relating to ecology and evolutionary biology, as well as information directly relevant to the proposed field of dissertation research. Examination committee members determine the questions, but the following is a suggested outline for oral comprehensive exams, in roughly equal proportions:

1. General ecology and evolutionary biology
2. Research area (e.g., ecology, systematics, or evolutionary genetics)
3. Specific research foci (e.g., sub-fields of research areas, taxonomic specialization, specific analytical methods)

Examinations are conducted in English. Students are encouraged to take the examination within four semesters of entering the program and are expected to complete the examination within five semesters. To be eligible to take the examination, both the Research Skills and Responsible Scholarship requirement and the Engagement and Enrollment requirement must be fulfilled and documented. Students must

acquire approval to take the comprehensive oral examination from (1) dissertation adviser(s), (2) remaining Research Advisory Committee (RAC) members, and (3) Graduate Program Committee. Students must contact the EEB graduate program coordinator no later than 2 weeks prior to the anticipated examination date to request departmental and College permission to schedule the event.

Doctoral committees must comply with the Graduate Studies policy on doctoral committee composition (<https://policy.ku.edu/graduate-studies/doctoral-student-oral-exam-committee-composition/>).

Exam outcomes are pass or fail; honors is not an option. A majority vote of the committee is required to pass the examination. If the adviser or committee members wish, secret ballots may be used. If the student fails the comprehensive oral examination, another examination may be scheduled a minimum of 90 days after the first examination, but under no circumstances may a student take the examination more than twice.

A successful pass of the comprehensive oral examination is considered valid by the university for 5 years. Doctoral candidates who do not complete the dissertation within 5 years may be required to take the examination again to demonstrate current knowledge in the field.

All doctoral students must prepare a dissertation proposal of 5–8 pages, with detail and clarity on par with NSF, NIH, or comparable proposals. Chapters should be described in sufficient detail that RAC members can assess scientific merit, feasibility, and whether the doctoral dissertation will fulfill the scope and requirements for a Ph.D. Dissertation proposals must be approved by the student's RAC by the time the student submits their second annual report to the department (end of 5 semesters). Failure to obtain approval of a dissertation proposal may result in an "unsatisfactory" annual evaluation. A suggested time frame would entail: Proposals distributed to the RAC committee at least two weeks prior to the second RAC meeting (end of 5 semesters). At this RAC meeting, students defend their proposal in the form of a presentation and must address any questions or concerns, before being approved by the RAC (majority) committee. Approval of dissertation proposal must be reported in the annual RAC report. Students are encouraged to develop the proposal ideas with their mentor and advisory committee well in advance of the meeting.

Research Progress, Final Oral Examination, and Dissertation Defense

After passing the comprehensive oral examination and advancing to degree candidacy, doctoral students are expected to focus on completing original research and writing of the dissertation. Although opportunities for taking valuable courses may arise, the majority of a doctoral candidate's enrollment should be in dissertation credits (BIOL 999 Doctoral Dissertation).

It is generally expected that the dissertation should be completed two to three years after advancing to candidacy. During these years, the student should continue to meet with his or her advisory committee on an annual basis to receive guidance on research progress. Committee membership should follow university requirements.

When the student and the faculty advisor are able to reasonably predict when the dissertation research and writing will be done, the dissertation defense and final oral examination may be scheduled. At least 5 months must have elapsed between successful completion of the oral examination and the date of the defense. Students must contact the EEB graduate program coordinator at least 2 weeks prior to the anticipated

defense date to request departmental and university approval of the defense.

A complete dissertation must be provided to the EEB Graduate Program Committee and to the student's entire dissertation committee no less than 2 weeks (or longer if requested by the student's committee) in advance of the planned defense. All members of the dissertation committee are required to read and comment on the work. 3 members are designated readers and provide a more detailed review. Students must follow the instructions for dissertation formatting (<http://graduate.ku.edu/etd-formatting-and-working-multimedia-files/>) and the instructions for submitting the dissertation (<http://graduate.ku.edu/submitting/>).

The dissertation defense and final oral examination include a presentation of the candidate's dissertation as a formal, public lecture. Whenever possible, the presentation should be part of the regular departmental seminar series. The presentation is followed by a question period, after which the final oral examination committee meets with the student for further discussion of the dissertation. A majority vote of the committee is required for the student to pass the examination; 80 percent of the committee must agree to award a student Honors. Both the dissertation and the presentation are considered in the decision. In rare cases it may be possible for committee members to attend the defense and examinations via mediated means such as tele/video-conferencing (for details view the exam attendance policy statement (<http://www.policy.ku.edu/graduate-studies/oral-exam-attendance/>)). After passing the final oral examination, the student will make any corrections to the dissertation that are required. Along with the title and acceptance pages, the final version will be submitted for approval to the department and the University.

Time Constraints

A student beginning graduate study with only a bachelor's degree is expected to complete all work for the master's degree in 2 or 3 years after initial enrollment at KU. A student beginning graduate study with a master's degree in the biological sciences should complete all work for the doctoral degree within 4 or 5 years. A student beginning graduate study with only a bachelor's degree in the biological sciences should complete all work for the doctoral degree within 5 or 6 years.

The maximum tenure for EEB graduate students varies according to degree program. The policy for master's program length (<http://policy.ku.edu/graduate-studies/ma-program-time-constraints/>) allows a maximum of 7 years to complete the degree program, and the policy for doctoral program length (<https://policy.ku.edu/graduate-studies/engagement-enrollment-doctoral-programs/>) allows 8 years for completion. Students earning both an M.A. and Ph.D. from the same academic department have a total of 10 years to complete both degrees. Petitions to extend the time limits must be approved by the student's advisory committee and forwarded to the EEB Graduate Program Committee for consideration before being forwarded to the College for final approval.

EEB requires that doctoral students must complete the equivalent of at least 3 academic years of full-time graduate study. This may include the time spent earning a master's degree.