CONTENTS

I. PhD Program in Evolution, Ecology, and Behavior ................................................................. 2
  (1) Coursework (typically first and second years of study) ...................................................... 3
    (A) Formal course credits ................................................................................................. 3
    (B) Grade requirements for courses .............................................................................. 4
    (C) Research credits ...................................................................................................... 4
      (i) L800 credits, (ii) G901 credits, (iii) Grading of research credits ....................... 4
    (D) Transfer of graduate credit ..................................................................................... 4
  (2) First year expectations, beyond coursework ................................................................. 4
    (A) Mentoring of first-year students ............................................................................. 4
    (B) Research area, research advisor, committee meeting ........................................... 5
    (C) Your research advisor .......................................................................................... 5
    (D) Advisory committee ............................................................................................. 5
    (D) First committee meeting: goals ............................................................................. 5
  (3 and 4) Years 2 and 3: Qualifying examinations ............................................................ 6
    (A) Overview ................................................................................................................ 6
    (B) Retake option ......................................................................................................... 7
  (3) Year 2: Qualifying examination part 1, 'Breadth of Knowledge' .................................... 7
    (A) Format .................................................................................................................. 7
    (B) Breadth ............................................................................................................... 7
    (C) Role of major advisor .......................................................................................... 8
    (D) Report of decision ............................................................................................... 8
  (4) Year 3: Qualifying examination part 2, 'Research Skills' ............................................. 9
    (A) Format .................................................................................................................. 9
  (5) Post Qualifying Exams: What is Next? Years 3 and beyond ...................................... 9
    (A) Admissions to candidacy ...................................................................................... 9
    (B) Official nomination of the research committee .................................................... 9
    (C) Citizenship in EEB ............................................................................................. 10
    (D) Requirement for continuous enrollment ............................................................ 10
    (E) Requirement for service as an Associate Instructor (at least one semester) ........... 10
  (6) Dissertation defense .................................................................................................. 10
    (A) 'Penultimate' committee meeting ........................................................................ 10
    (B) Submitting and defending the dissertation ........................................................ 10
    (C) Time limits, extensions, and revalidation .............................................................. 11
  (7) A minor in EEB (for students outside EEB) ............................................................... 12

Table 1: Summary of key deadlines and key tasks for the EEB PhD Program ................. 13

II. MS In Evolution, Ecology and Behavior ............................................................................ 14
  (1) Description of the MS program in EEB .................................................................. 14
    (A) Advisor and Advisory Committee ...................................................................... 14
    (B) Course requirements ........................................................................................... 14
    (C) Grade average and time limits ............................................................................ 14
    (D) Thesis or alternative project ................................................................................. 15
    (E) Certification ........................................................................................................ 15
  (2) Departmental transfer policy: MS to PhD or PhD to MS ........................................ 15
    (A) Master's to PhD .................................................................................................. 15
    (B) PhD to Master's: Overview and specific procedures ........................................ 16

III. Miscellany ..................................................................................................................... 16
  (1) Flexibility in degree requirements ......................................................................... 16
  (2) Alternative career objectives .................................................................................. 16

BOXES

Box 1: Concentration area courses .................................................................................... 3
Box 2: Description of the minor ....................................................................................... 3
Box 3: More about advisory and research committees ................................................... 6
Box 4: Procedure for transfer from Ph.D. to Master’s degree in the Department of Biology ............................... 17
I. PhD PROGRAM IN EVOLUTION, ECOLOGY, AND BEHAVIOR

Introduction:
The Doctoral (Ph.D.) degree in the graduate program in Evolution, Ecology, and Behavior (EEB) may be obtained in a variety of concentration areas or in an individually tailored program. In addition to the specific requirements of the EEB Program described below, students must meet the general requirements of the Department of Biology and those of the University Graduate School (UGS), as described in the Bulletin. All new students and students approaching critical milestones (First Committee Meeting, Qualifying Examination, Finishing Thesis or Dissertation) should consult the Bulletin to be sure they are in compliance with relevant rules. It is the student's responsibility to make certain that her/his program meets her/his personal objectives and conforms to the regulations and requirements of the Graduate School, of the Department of Biology, and of the EEB Program.

Program Overview:
Students in the PhD program follow a typical timeline (Figure 1). This timeline governs the structure of the material in this handbook. See also the summary Table 1 and the EEB Checklist form.

![Figure 1. General time course of a PhD in EEB at Indiana.](image)

- **(1) Coursework (major and minor), preliminary experiments, rotations**
- **(2) Committee meeting, choose minor**
- **(3) Breadth of knowledge exam (Qualifying Exam, Part 1)**
- **(4) "Research Skills" exam (Qualifying Exam, Part 2)**
- **(5) Dissertation research, publishing along the way going to conferences, Brown bag talk(s)**
- **(6) Penultimate committee meeting, dissertation defense, post-doc applications**

EEB Faculty:
EEB Graduate Faculty are composed of 25 scientists. We are listed [here](#).

EEB Grad Program Contact:
Adviser for Graduate Affairs: Gretchen Clearwater, Myers 150, gclearwa@indiana.edu
EEB Graduate Program Director: Spencer Hall, JH 239, sprhall@indiana.edu, 5-6009
Director of Graduate Studies, Biology: Roger Hangarter, MY 352, rhangart@indiana.edu

**Key Abbreviations:** GPD: Grad Program Director; DGS: Director of Graduate Studies of Biology; UGS: University Graduate School; NOR: Nomination of Research Committee
(1) Coursework (typically first and second years of study)

(A) Formal Course Credits:
A total of 90 credit hours comprised of 29+ formal class course credits is required by the EEB Grad Program. Course credits include:

(1) a 20 credit ‘major’ (composed mostly of EEB courses, with exceptions approved by the EEB Graduate Program Director [GPD]), including two courses from one concentration area listed in Box 1 and one course from a second area;

(2) a six+ credit ‘minor’ (taken within Biology or through another department: credits vary from 6 to 12; see Box 2); and

(3) a three credit statistics ‘toolkit’ class (Z620 Biostatistics or equivalent, many of which are listed here).

Up to six credits in the ‘major’ may come from three sources:
(A) Z620 journal clubs (offered in some semesters)
(B) L500 Independent Study/Readings (graded), and/or
(C) L501 Rotations (graded).
L500/L501 credits require written summaries approved by the students’ graduate advisor(s) and Advisory committee using the form at the EEBGrads Box site. Not more than four credits may come from any of sources (A) - (C).

Box 1: Concentration area courses
Ecology/Population Biology
E455 (SPEA) Limnology
L575 Biodiversity and Eco. Functioning
L577 Theoretical Ecology
L578 Advanced Population Biology
L579 Community Ecology
L591 Plant Population Biology—An Experimental Approach
Z620 Ecological Niches
Z620 Ecological Stoichiometry
Z620 Ecosystems and Global Change
Z620 Quantitative Biodiversity

Evolutionary Biology
L505 Molecular Biology of Evolution
L567 Evolution
L568 Evolutionary Genetics
L533 Evolution of Genes and Genomes
L563 Evolution of Cells and Proteins
Z540 Genetics of Cells and Proteins
Z620 Evolution of Development
Z620 Phylogenetics
Z620 Systematics
I590 (INFO) SNP Discovery and Population Genetics
G562 (Geo Sci) Geometric Morphometrics

Behavior/Physiology
A501 Techniques in Reproductive Diversity
L560 Physiological Ecology
L581 Behavioral Ecology
P548 Neuroethology
Z460 Animal Behavior
Z563 Comparative Neurobiology of Animal Behavior
Z566 Laboratory in Endocrinology
Z620 Sensory Ecology

Other courses may be approved by the Graduate Program Director

Box 2: Description of the minor:
Each EEB student must complete coursework for a minor. The minor may obtained from:
- within Biology (Genetics or Microbiology),
- a separate department (e.g., Informatics, Statistics, Environmental Science from SPEA, Geology, Geography, Education, typically best described in the Bulletin),
- an interdepartmental program (e.g., Animal Behavior), or
- an ‘Individualized minor’.

EEB will waive the three credit ‘toolkit’ requirement in statistics for students minoring in Statistics (12 credit).

Please note: Requirements are set by the unit administering the minor but consist of a minimum of 6 credits up to a maximum of 12 credits. Each student must have a minor advisor, who ensures requirements for the minor are completed successfully.

Brown Bag requirement: Additionally, two credits in the major should come from **L570 'Brown Bag'** (formally: 'Seminar in Ecology and Environmental Biology'; 1 credit per semester, so enroll 2+ times, typically done in the first year, but perhaps taken one semester each in the first two years).
(B) Grade Requirements for Courses:
Only grades of 'B-' or higher fulfill EEB major or minors (but all courses count in the overall GPA). Students must maintain a 3.2 GPA or higher to receive support from Biology (as Associate Instructors or from Internal Fellowships). The University Graduate School requires a cumulative GPA of 3.0 or higher. Students not meeting this UGS requirement are placed on Academic Probation. (If placed on probation, students must raise the cumulative GPA above 3.0 during the next semester or face dismissal from the Graduate School).

(C) Research Credits:
(i) L800 Credits: Remaining credit hours come from dissertation research (L800). Most 1st-3rd year students should have a total of 12 credits per semester - so L800 credits typically are added to formal course credits to reach 12. Fourth year students must have at least 6 credits (L800).

(ii) G901 Credits: After 90 credits have been taken and students become PhD Candidates (i.e., formal coursework is completed, Qualifying Exams Part 1 and 2 are passed), students may enroll in G901 Advanced Research to maintain 'active status'. This 6 credit course has very low fees, providing an inexpensive way for some students, typically funded on fellowships or research assistantships, to maintain a full load. (Students want to take G901 credits when possible to reduce fees that they must pay).

(iii) Grading of Research Credits: Passing grades in research courses for work done toward Ph.D. dissertation will be graded R (= evaluation deferred) until the research project is complete (i.e., the dissertation is defended and all requirements are met). A total of 90 graduate credit hours or the equivalent is required. Because the Ph.D. is a research degree, a substantial number of these credit hours will be in L800 Research.

(D) Transfer of Graduate Credit:
Graduate work taken elsewhere may qualify for transfer credit toward the Ph.D. and may be substituted for required or elective courses. The appropriateness of proposed substitutions will be determined by the student's Advisory Committee. No more than 30 credits by transfer can be accepted for the Ph.D.

Any changes described here to course requirements can (but do not have to) apply retroactively.

(2) First year expectations, beyond coursework

(A) Mentoring of First-Year Students:
During the first semester of the PhD, each new student must meet at least once with his/her faculty mentor (typically the advisor). This meeting should happen at six to eight weeks into the semester, then again at the end of the semester. At this meeting, student and mentor to discuss progress in courses and rotations and, where relevant, the Associate Instructor experience. In addition to these required meetings, the student is encouraged to meet with his/her mentor as useful.
**(B) Research Area, Research Advisor, Committee Meeting:**
In their first year, Ph.D. students make a preliminary choice of a thesis research area, select a faculty research sponsor (advisor), and form an Advisory Committee. *Before the end of their second semester (early May)*, students should meet with their Advisory Committee at least once to determine course work requirements, review plans for summer research, and plans for Qualifying Examination Part 1: Breadth of Knowledge. Students must have joined a lab before the end of May in order to remain in good standing in the program.

**(C) Your Research Advisor:**
Each student must obtain the agreement of a faculty member in the Department of Biology to serve as the Ph.D. Research Advisor. (Students do not 'choose' an advisor; they form an agreement for a student-advisor relationship). Until the student forms that agreement with an Advisor, the EEB Graduate Program Director will serve in that role. The Advisor will help the student plan a coherent program of courses and research commensurate with the student's interests and the requirements of the program, and will oversee the formation of an Advisory Committee. A Research Scientist can serve as your advisor, but the University Graduate School requires a tenured co-advisor.

**(D) Advisory Committee**
The Advisory Committee must consist of four or more members, at least two of which must be full members of the Graduate Faculty. The Advisory Committee must include at least two faculty from EEB and one from the minor area. In practice the Advisory Committee is usually chosen by mutual agreement between the Advisor and the student. The student then contacts the potential Committee members to obtain their agreement to serve on the Advisory Committee. **Box 3** describes both the Advisory Committee (pre-Candidacy) and Research Committee (post-Candidacy) in more detail.

**(E) First Committee Meeting: Goals**
The first meeting of the student's Advisory Committee must be convened before the end of the second semester of study in the Ph.D. Program. At this meeting, students:

* discuss goals and intended area of concentration,
* review her/his past graduate course work and plan additional course work, and
* review research plans for the summer and beyond in preparation for Qualifying Exam Part 2 "Research Skills".

At this time the Advisory Committee will identify any deficiencies in course work. At the Advisory Committee's judgement, deficiencies may include any basic requirements not already satisfied, as well as additional courses in biology, chemistry, or other academic areas, or the learning of ancillary skills such as statistics or computer science. The Advisory Committee will also decide the time for, and schedule of, the student's Qualifying Examination part 1 'Breadth of Knowledge'.

**Form for Advisory Committee:** The College's *Appointment of Advisory Committee* Form is typically signed at this meeting and submitted to the Graduate Office who then send it to the College.

**Committee meeting report:** After the committee meeting (and each one subsequent), advisors should fill out the report of the committee meeting form, save it to the student's IU Box folder, and email it to the Graduate Advisor. It is the advisor's and student's joint responsibility to ensure that this form is completed.
Box 3: More about Advisory and Research Committees

1. Each student must have four members on the formal 'Research Committee' set with UGS – and each must be on IU’s Graduate Faculty list. Two or more must be from EEB. Research Scientists can serve if they are Graduate Faculty. This Research Committee is formally established with UGS post-Candidacy. The pre-Candidacy 'Advisory Committee' (set with the College) requires four members, but one can be from outside IU. (Thus, the Advisory Committee is more flexible than the Research Committee set later).

2. For the Research Committee, students can still have a 5th outside member. Typically, this member provides particular expertise to the committee not available at IUB.

3. Committee meetings, held annually (once per academic year) require a quorum (three for a committee of four or five), present either in person or electronically. All members must be present for dissertation defenses (as required by UGS).

4. Before coming a candidate (1st and 2nd year), students must recruit a ‘Minor Advisor’. If the minor is outside Biology, the Minor Advisor must have authorization to approve the minor coursework. This Minor Advisor must remain on your committee through written prelims (Qualifying Exam, part 1). This Minor Advisor provides one of the four written questions in that exam (since the minor is represented on the exam).

5. After your Qualifying Exam part 1, committee membership can be changed, if desired. For instance, it may be preferable to replace the Minor Advisor, for instance, with an EEB faculty for Qualifying Exam part 2 proposal defense or beyond. The key point: committee membership is flexible. (Before the NOR form is submitted, no paperwork is required for this step, but please update the Advisor for Graduate Affairs).

6. Usually after Candidacy but no later than Spring of the fourth year of study, students solidify membership of the Research Committee online, from one.iu.edu, using the ‘Nomination of Research Committee’ form, aka, the NOR form. Changes to committee makeup afterwards require submission, again via one.iu.edu, of the ‘Change of Research Committee’ form.

7. IMPORTANT: Requirement for Annual Meeting and 'Good Standing': Each student must hold a committee meeting at least once per academic year to remain in 'good standing' with the EEB Graduate Program. The results of this meeting must be reported on the committee report form, saved to the student's IU Box folder, and sent to the Graduate Office. Students should report the meeting to the Advisor for Graduate Affairs to ensure paperwork is completed. At this annual meeting, students must maintain 'satisfactory' academic progress toward the degree, a standard set by the Research Committee and the EEB Graduate Program. Students not meeting this standard are not in 'good standing' and placed on academic probation for one semester by UGS. If the student does not demonstrate progress during that probation, UGS will dismiss the graduate student.

(3 and 4) Years 2 and 3: Qualifying Examinations

(A) Overview:
The Ph.D. qualifying examination aims to determine preparation for independent research. It is difficult to assess the ability to do creative, rigorous research. The Committee will thus look for:

* a solid background in basic biology and the physical sciences;
* familiarity with and ability to manipulate important concepts in EEB, especially the ability to derive from them a significant question for research;
* the ability to structure experiments or observations in such a way as to answer questions unambiguously;
* the ability to analyze correctly and to interpret creatively the results of experiments or
observations;
* the ability to derive the next step in the process of investigation; and
* the ability to communicate effectively with other scientists orally and in writing.

The exam is structured in two parts, typically taken in years 2 and 3 separately.

<table>
<thead>
<tr>
<th>Structure of the Qualifying Examination, Parts 1 and 2</th>
</tr>
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<tbody>
<tr>
<td><strong>Part 1. Breadth of Knowledge:</strong> A written examination with an oral defense.</td>
</tr>
<tr>
<td>– Students demonstrate mastery of the major ideas and research strategies appropriate to the concentration area, as well as mastery of effective written and oral communication.</td>
</tr>
<tr>
<td>– Questions are formulated by the Committee members and given to the student on the first day of a size week written examination period.</td>
</tr>
<tr>
<td>– This part must be passed prior to the 13th week of the student's fourth semester in the EEB program.</td>
</tr>
<tr>
<td><strong>Part 2. Research Skills:</strong> A preliminary research project report, a proposal for dissertation research, and an oral defense of both.</td>
</tr>
<tr>
<td>– Student demonstrate ability to engage in active research and to appropriately analyze and interpret the data that she/he derives. In addition, it is the point at which the committee must approve the dissertation proposal.</td>
</tr>
<tr>
<td>– This part must be passed prior to end of the student's sixth semester in the EEB program.</td>
</tr>
</tbody>
</table>

See below for details on each exam.

**(B) Retake Option**
In the event of failure of the exam prior to the deadline, a student may retake each component only once. This retake must be completed before the deadline specified for that component. Failure to pass either part satisfactorily within the allotted time during the retake will result in dismissal from graduate study. Students who fail the examination must be reexamined by the same committee unless the student has changed advisors. In that event, a majority of the new committee must have been members of the original committee.

**(3) Year 2: Qualifying Examination Part 1, 'Breadth of Knowledge'**

**(A) Format**
1. **Number of questions:** Students will research and prepare written answers on 4 questions chosen by their advisory committee during a 6-week period of study.

2. **Length of answers:** The written answers to each of the 4 questions are to contain full text citations and to be 4-6 double-spaced pages in length (not to exceed 2000 words).

3. **References cited:** A References Cited section must accompany each written answer and shall not count toward the page/word limit.
4. **Nature of the answers:** Answers should exhibit the student’s proficiency at synthesizing the literature and at staking out their own intellectual positions, rather than being a simple summary of all literature and ideas relevant to the question.

5. **Timing:**
   A. **Submission of answers:** The 4 written answers will be turned in to the major advisor on the day following the 6-week period.
   
   B. **Timing of oral exam:** An oral exam will be scheduled within 1 week of the end of the 6-week study period. After a question and discussion period during the oral exam, the major advisor will facilitate discussion among the faculty examiners about the student's performance and the committee will decide the exam outcome.

**(B) Breadth:**
The 4 exam questions shall encompass at least three different areas relevant to the student’s research scholarship, including the student’s core area (e.g. Evolution, Ecology or Behavior) and the minor. Appropriate areas include but are not limited to ecology, evolution, behavior, physiology, neuroscience, and development. Any given question may bridge more than one area.

Although the questions are designed to assess breadth of knowledge, they can be related to the student's specific research project(s). As one example, an evolution question for a plant ecology graduate student working on plant-microbe interactions might focus on coevolution between plants and microbes. Likewise, a behavior question for the same student might address some aspect of plant 'behavior', such as mechanisms of information exchange between or within plants or between plants and other organisms. Such questions can be tailored so that the student also needs to explore and articulate general concepts in the area (e.g. Wright's adaptive landscapes, levels of selection, Tinbergen’s ‘Four Questions’). This approach will foster well-rounded graduate students who are able to think outside the box of their own specialty, understand the relevance of other major disciplines to their own research interests, and synthesize knowledge across fields.

**(C) Role of major advisor:**
The major advisor will be responsible for writing no more than 1 question and soliciting 2 exam questions from each of the 3 other committee members, for a total of 7 questions. Questions should be solicited sufficiently in advance of the exam period. The major advisor will lead the decision-making about which areas each committee member provides questions on and should review the questions and suggest or request modifications as necessary, including the possibility of merging questions to create more synthetic ones. The major advisor will have the responsibility of arriving at 4 exam questions from the original 7 questions that encompass at least 3 different areas and the committee as a whole will have final approval of the 4 questions. The major advisor shall provide a written copy of the questions to the graduate examinee on the first day of the 6-week exam period.

**(D) Report of Decision:**
Following the oral exam, the major advisor will provide a detailed summary of the committee's decision, including an assessment of strengths as well as any areas for continuing progress. A written communication of this summary should be sent to both the Graduate Office (Gretchen Clearwater) and directly to the student. This summary shall specify the 3 areas over which questions were drawn. The major advisor is also expected to have a more in depth one-on-
one with the graduate examinee to discuss the student's performance on the written and/or oral portion of the exam when needed or if requested by the student.

(4) Year 3: Qualifying Examination Part 2, 'Research Skills'

(A) Format:

(i). Written format: By the end of the fourth week of the sixth semester, the student submits to the Advisor and Committee a written report on preliminary research and a written proposal for their dissertation research. There are no set formats for the write up of preliminary research and proposal. Students should consult their Advisor and Committee and look at previous proposals.

2. Oral Examination: An oral examination covering both the report on the preliminary research and the proposal is held before the end of the sixth week of the sixth semester. This chronology allows time for a retake before the departmental deadline (end of the student’s sixth semester) if the first attempt is unsatisfactory.

3. An option for students with a MS degree: Students who previously have completed a Master's thesis (or other substantial graduate individual research project with a written report) may propose that this previous research and the thesis or report be accepted in lieu of the preliminary research project component of the qualifying examination. The appropriateness of such a substitution will be determined by the student's Advisory Committee. If the substitution is accepted, both parts of the qualifying examination must be completed prior to the 13th week of the student's fourth semester.

(5) Post Qualifying Exams: What is next? Years 3 and beyond

(A) Admission to Candidacy:

Once the student has:

1. passed both parts of the qualifying examination and
2. completed all required major coursework (including 2 credits of Brown Bag), minor course work, and a three+ credit statistics 'toolkit' course,

the student can be nominated to candidacy for the Ph.D. degree. In order to advance to candidacy the student must submit via one.iu.edu the Nomination of Candidacy Form. A list of courses used for the degree must also be submitted (including semester and year taken, credit value, and grades) that indicates which are major and minor courses and which fulfill Areas of Specialization. (Use of the EEB Checklist will make that task easier.)

Students who wish to apply for a NSF-DDIG fellowship (typically due in October of each year) must have officially advanced to candidacy by submission of the DDIG.

(B) Official Nomination of the Research Committee:

Typically, most students submit the Nomination of Research Committee (NOR) form via one.iu.edu when they submit the Nomination of Candidacy form. It must be submitted no later than by spring semester of 4th year. When submitting the NOR form, the candidate must include a one- or two-page
prospectus of the dissertation research to the Graduate School, after consultation with and approval by the student's Advisor and by the proposed Research Committee. After completing the NOR form, any subsequent changes to the composition of the Research Committee should be completed via the PhD Research Committee Change form via one.iu.edu.

(C) Citizenship in EEB:
Even after completing coursework and Qualifying Exams, it remains important to contribute to our EEB community.

1. **Brown Bag requirement**: Students are required to deliver at least one seminar in the L570 'EEB Brown Bag' (formally 'Seminar in Ecology and Evolutionary Biology'). (EEB encourages that students deliver more than one during their grad career).

2. **Expectation of attendance**: Students are expected to attend EEB Brown Bag (typically Tuesdays) and EEB Seminar (typically Fridays), from first year through end of graduate school.

3. **Encouragement of participation**: Students are encouraged to attend more informal forums for interactions. These include: Ecolunch, EDG (Evolution Discussion Group), Behavior and Physiology Journal Club (SMURLAS), Disease Ecology and Evolution Discussion group (DEED), Evolutionary Cellular Biology group, etc. These forums provide opportunities for interactions, presentation of research, discussion of primary literature and books, etc.

Schedules for [EEB Friday seminar, Brown Bag, journal clubs](https://example.com), etc., can be found online.

(D) **Requirement for continuous enrollment**:
After admission to candidacy the student must enroll each semester, excluding summer sessions, for any remaining required course work, dissertation, or research credit. If 90 hours have been completed, the student has been admitted to candidacy, and if the student is supported by the University (i.e., they have not graduated), they will register for 6 credits of G901 for up to six semesters, as needed. After that, the student must enroll for at least one hour of research or dissertation credit in each semester until the degree is completed (even if the student lives outside of Bloomington). A candidate who will graduate in June, July, or August must enroll for at least one hour of credit in either of the two summer sessions.

(E) **Requirement for service as an Associate Instructor (at least one semester)**:
If the student has not served as an Associate Instructor (AI) at least once pre-candidacy, he/she must serve at least once during the Candidacy period. (Every student must serve at least once at IUB; service as the 'instructor of record' for a class would certainly fulfill this requirement).

(6) **Dissertation Defense**

(A) **Penultimate committee meeting**:
Students should hold a 'penultimate' committee meeting with their committee approximately 6 months (typically 4-8 months) before the intended date to defend the dissertation. At this meeting, the students present the core elements of their dissertation chapters, already completed and in final prep. The committee then provides feedback on the material presented. They will indicate whether they can forecast a successful defense or if instead they recommend a delay in defense timing. No
decisions made at this meeting are binding, however. This penultimate meeting may fulfill the requirement for an annual meeting, or it may be an additional meeting during an academic year.

**(B) Submitting and defending the dissertation:**
To obtain the Ph.D., a candidate must submit a dissertation that is acceptable to the members of her/his Research Committee and to the University Graduate School. Research for the dissertation usually occupies substantially more than half the student's graduate training. It is essential that the student obtain the Committee's advice and consent in formulating, pursuing, and writing the dissertation.

If the dissertation topic is subsequently changed significantly following submission of the Nomination of Research Committee (NOR) form, approval must be obtained from the Research Committee and, if the nomination to candidacy has been submitted, from the Dean of the Graduate School.

The specific deadlines are:
1. **Announcement with the UGS:** A final and approved the same time, the student must submit to the Graduate School a one-page announcement of the final public examination via one.iu.edu, called 'Ph.D. Defense Announcement'. The final approved form must be submitted to UGS 30 days prior to the defense. Therefore, it should be submitted electronically to committee members 40 days in advance.

2. **Submission of to the committee:** At least two weeks before the final examination, a complete, unbound copy of the dissertation (or pdf if agreed to by the committee members) must be submitted to each member of the candidate's Committee. Your committee may or may not require formatting by the guidelines set by the Graduate School.

3. **Public defense:** The student must hold a public defense of her/his Ph.D. dissertation. This will take the form of a public seminar followed by open discussion. A meeting with the Committee and other interested faculty will follow.

4. **Filing the dissertation:** Specific guidelines for the preparation and submission of the announcement and dissertation can be found here. A pdf copy of your final dissertation must also be submitted to the Graduate Office of the Department of Biology. At the time of the defense “R” or deferred graded research credits are turned to letter grades.

**(C) Time Limits, Extensions, and Revalidation:**
1. **Time limit and Termination:** The student must submit and have received acceptance of her/his dissertation within seven years after the date on which the qualifying examination part 2 is passed. Failure of a candidate to meet this requirement will result in the termination both of candidacy and of enrollment in the degree program.

2. **Reinstatement:** To be reinstated in the Graduate School, the student must first take and pass a then-current Ph.D. qualifying examination and then petition for a reinstatement of candidacy which, if granted, will be valid for a period of three years. If at the end of the period of reinstatement the student has a dissertation accepted for defense by the Research Committee, but needs additional time for the defense, etc., the Graduate School may grant an extension of up to
six weeks. However, no other extensions will be approved.

(3) **Revalidation:** In addition, all course work that is to be counted toward the Ph.D. must have been completed or revalidated within seven years prior to the completion of the degree. Courses that were taken more than seven years prior to completion may be revalidated. The purpose of revalidation is to demonstrate that courses counted toward a degree (and the body of knowledge contained in them) are acceptable as current and adequate at the time of revalidation. For each course falling outside the seven-year period allowed for the Ph.D., students must demonstrate that they have remained current in the knowledge required by the course. This can normally be done by:

- passing an examination specifically on the material covered by the course;
- passing a more advanced course in the same subject area;
- passing a comprehensive examination (either an M.S. examination or a Ph.D. qualifying examination) in which the student demonstrates substantial knowledge of the content of the course;
- teaching a comparable course; or
- publishing scholarly research demonstrating substantial knowledge of the content and fundamental principles of the course.

(7) **A Minor in EEB (for Students Outside EEB)**

Students from outside of EEB are welcome to pursue a [PhD minor in EEB](#). EEB's minor requires:

(1) **Minor advisor:** Students must select an EEB Minor Advisor from a list of [Core EEB Faculty](#).

(2) **Number of credits required:** 6 credits.

(3) **Course offerings:** Select 2+ courses from one of the three areas of concentration in Box 1 (above). Please note:

- Courses may not satisfy major and minor requirements simultaneously.
- Courses from more than one area of concentration may be approved by the minor advisor.
- Substitutions may be approved by the EEB Minor Advisor and the EEB GPD.

(4) **Grades:** An overall average of a B (3.0) is required in EEB minor coursework.

(5) **Transferring Credit:** A student may transfer grad courses to meet requirements of the EEB Minor. This transfer must be approved by the students' Advisory Committee and the Minor Advisor.
Table 1. Summary of key deadlines and tasks for the EEB PhD Program (with key links). Students should use the EEB Checklist to track their progress on these tasks.

<table>
<thead>
<tr>
<th>Task</th>
<th>Year</th>
<th>Done by / Other notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meeting with Advisor</td>
<td>1st</td>
<td>By 6-8 weeks into first semester</td>
</tr>
<tr>
<td>2. Formation of advisor-mentor relationship, joining a lab</td>
<td>1st</td>
<td>First or Second Semester - by May at the latest</td>
</tr>
<tr>
<td>3. Advisory Committee Meeting, First year</td>
<td>1st</td>
<td>By end of Spring Semester</td>
</tr>
<tr>
<td>4. Formation of Advisory Committee, submission of Advisory Form</td>
<td>1st</td>
<td>After first committee meeting; get the form from Gretchen or EEB Grad Box site (here)</td>
</tr>
<tr>
<td>5. Qualifying Exam, Part 1: 'Breadth of Knowledge'</td>
<td>2nd</td>
<td>By 13th week, spring semester; advisor fills out committee report form</td>
</tr>
<tr>
<td>6. Qualifying Exam, Part 2: 'Research skills'</td>
<td>3rd</td>
<td>By end of spring semester; advisor fills out committee report form</td>
</tr>
<tr>
<td>7. Completion of coursework for EEB major etc., including 2 semester of EEB Brown Bag, 2 courses in one area of concentration, 1 course in another (Box 2), and fulfillment of a minor (Box 3)</td>
<td>by 3rd</td>
<td>Fill out Nomination of Candidacy Form. Submission of form for use of L500/L501 with committee approval, if applicable</td>
</tr>
<tr>
<td>8. Nomination of Research Committee</td>
<td>by 4th</td>
<td>Spring at the latest, but preferably after candidacy in third year; fill out NOR form</td>
</tr>
<tr>
<td>9. Change of Research Committee</td>
<td>4+</td>
<td>Done only if NOR form completed; via PhD Research Committee Change form</td>
</tr>
<tr>
<td>10. Annual Committee meetings</td>
<td>4+</td>
<td>This is a requirement to remain in good standing with EEB. Advisors fill out a committee report form.</td>
</tr>
<tr>
<td>11. Attendance at EEB Seminar, Brown Bag, etc.</td>
<td>All</td>
<td>This is expected each week</td>
</tr>
<tr>
<td>12. Continuous enrollment after candidacy</td>
<td>3+</td>
<td>Required 12 credits years 1-3; 6-9 credits OK years 4+; G901 credits available after 90 credits reached; at least one credit required for off-campus, post-candidacy students.</td>
</tr>
<tr>
<td>13. Delivery of EEB Brown Bag talk</td>
<td>1-5+</td>
<td>Each student must deliver at least one talk at EEB Brown Bag (L570) during their time as an EEB student. EEB encourages more than one talk.</td>
</tr>
<tr>
<td>14. Service as an Associate Instructor</td>
<td>1-5+</td>
<td>Each student must serve as an Associate Instructor (or primary instructor) of a course at IU at least once.</td>
</tr>
<tr>
<td>15. Penultimate Committee meeting</td>
<td>4-6</td>
<td>Held c. 6 months before intended defense. May serve as annual committee meeting, or may be an additional meeting. Advisor must fill out committee report form.</td>
</tr>
<tr>
<td>16. Defense: announcement with UGS</td>
<td>4-6</td>
<td>Due in final approval 30 days before defense via Ph.D. Defense Announcement' form. Submit it to committee members 40 days before defense.</td>
</tr>
<tr>
<td>17. Defense: submission of dissertation</td>
<td>4-6</td>
<td>At least two weeks before the defense, in PDF and/or printed format; must be defended no later than 7 years post completion of Qualifying Exam Part 2.</td>
</tr>
<tr>
<td>18. Defense: filing of dissertation</td>
<td>4-6</td>
<td>Please note deadlines to graduate within certain semesters (e.g., 15 July for summer graduation); heed formatting guidelines set by UGS.</td>
</tr>
</tbody>
</table>
II. M.S. IN EVOLUTION, ECOLOGY AND BEHAVIOR

Many elements of the EEB MS program resemble those of the PhD program. Below, the key similarities and differences are highlighted. Additionally, instructions for transferring from the PhD to the MS, and from the MS to the PhD, are provided.

(1) Description of MS program in EEB

(A) Advisor and Advisory Committee:

Advisor: The student must obtain the agreement of a faculty member in the Department of Biology to serve as the student's Research Advisor.

Advisory Committee: The M.S. Advisory Committee must include three faculty members at IUB (not four). It should include at least two from the EEB Program, but it may include one or two additional faculty members from any department at Indiana University (as long as they serve as Graduate Faculty with UGS). An Advisory Committee for the Ph.D. in EEB can also function as the Advisory Committee for an M.S. in EEB.

In practice, the Advisory Committee usually is chosen by mutual agreement between the Advisor and the student, who then contact potential committee members and obtains their agreement to serve on the Committee. A nominating form (from the Biology Graduate Office) designating the proposed membership of the Committee is submitted to the EEB Program Director, the Director of Graduate Studies of the Biology Department, and the Graduate School for approval.

(B) Course requirements:
The Advisory Committee must meet before the end of the student's second semester of M.S. work and approve a proposed plan of course work and a proposed topic and scope for the thesis or alternative project. The nature of these two components is determined by the student's Advisory Committee subject to the following constraints:

(i) Graduate Credits. The student must take a minimum of 30 hours of graduate credit; at least 20 of which must be in the Department of Biology. At least 21 must be in courses and seminars (see Box 1 above) and at least 6 must be in graduate research (L800).

(ii) Focus. The courses and research that each student pursues must have a coherent focus within the general field of EEB. Examples of appropriate foci are the Ph.D. areas of specialization (Box 1 above).

(C) Grade Average and Time Limits:

(i) Grade averages: A cumulative "B" average (3.0) is required by UGS for the degree, but any support from Biology (if offered and available) requires a cumulative 3.2 GPA. If a student's average falls below 3.0 GPA, the student will be placed on academic probation by UGS. Failure to raise the overall average to at least 3.0 during the next semester will result in dismissal from Graduate School.

(ii) Time Limits: The M.S. degree must be completed within five semesters of full-time study if a student is continuously enrolled. If enrollment is part-time or episodic, students must complete the degree in five calendar years. (Enrollment is not required during the thesis-only phase of study).
Students in Ph.D. Programs in the Department of Biology who decide to leave IU during or after the fifth semester may petition the EEB Program Director and the Director of Graduate Studies for a single additional semester of support to complete the M.S. Such petitions will be considered on their individual merits. After 5 years, courses used for the MS must be revalidated.

**D) Thesis or Alternative Project:**
The M.S. in EEB must include a research project following the guidelines below:

(i) **Proposal:** Before the research is begun the student must obtain the approval by her/his Advisory Committee of a written proposal for the M.S. research project. The brief proposal should include a statement of the research problem, a brief analysis of the most relevant literature, a tentative experimental design, and a plan for the data analysis. The scope of the project should be such that the project could reasonably be completed in no more than nine credit hours of effort.

(ii) **Conducting the research:** Once the design is agreed upon by the student and the Committee, the student proceeds with the research, making necessary design modifications in consultation with her/his Committee. Continuous enrollment is not required while conducting MS thesis research (in contrast to the PhD).

(iii) **Thesis and Oral Defense:** After the research is completed, a written report is prepared that usually includes revised material from the original proposal as well as properly analyzed results and discussion. The research project must be orally defended before the Advisory Committee. The initial part of this defense may be a public seminar. It is not necessary that the results of the research adequately support or refute the initial hypothesis.

(iv) **Evaluation:** Rather, the examination and written report will be evaluated on the student's mastery of the skills of problem delineation, research design, research techniques, data analysis, elucidation of the significance of results, and written and oral presentation.

(v) **Use of Thesis Project for PhD Transfer:** Students who plan to pursue the Ph.D. in EEB may request permission to use the preliminary research project component of their qualifying examinations as the M.S. project and examination.

(vi) **Scope of the Project:** The scope (6 to 9 credit hours) and the relative success of the research will vary among projects. More extensive projects producing positive, publishable results will usually be designated 'theses'. Briefer projects and those producing primarily negative results will be designated 'alternative projects'. Students completing a thesis should consult the Graduate School Bulletin for information on format, number of copies, etc. ([Current directions from UGS](Current directions from UGS))

**E) Certification:**
satisfactory completion of the program of course work, the thesis or alternative project, and the M.S. degree as a whole must be certified by the Advisory Committee on the appropriate form. Subsequent approvals by the Director of the Graduate Program in EEB, the Director of Graduate Studies of the Department, and the Graduate School are also required.

2. Departmental Transfer Policy: MS to PhD or PhD to MS

(A) **Master’s to Ph.D.: Overview:**
Admission directly to the Master’s program is rare for EEB but sometimes happens. The Master’s
degree program is not a probationary period for evaluating borderline Ph.D. students before admitting them to the Ph.D. program.

Master’s students who wish to change from the Master’s program to the Ph.D., the student must formally apply to the relevant Ph.D. program through the normal application process no later than their third semester of MS study. The applications will be reviewed in winter along with all other applications to the Ph.D. program using the same criteria used when considering applicants who have been in Master’s programs elsewhere.

(B) Ph.D to Master’s: Overview and specific procedures:
For various reasons, student may change from the Ph.D. to the Master’s program. For example, students may come to realize that they would be better off following a different career path. Some students may be confronted with issues in their personal lives that may make it difficult for them to continue their studies. Faculty may also recommend that a student transfer to the Master’s program if they are not making sufficient progress to complete the Ph.D. in a timely fashion.

To change from the Ph.D. to the Master’s program, a student must be on track to complete the necessary course requirements and to complete sufficient research for a Master’s Thesis. Awarding a non-research Master’s is strongly discouraged but may occur if the advisor and appropriate program director feel it is appropriate.

The procedures and form for changing from the Ph.D. to Master’s degree are found in Box 4. Note that since the students have already been admitted to graduate program, the degree change decision is made by the EEB GPD in consultation with the DGS.

III. MISCELLANY

(1) Flexibility in degree requirements:
The requirements for the M.S. and Ph.D. degrees outlined above may be modified in several ways to take account of the student's background and career objectives. Any required course may be waived upon presentation of adequate evidence showing that the student already has acquired substantially the same knowledge either from previous courses or independently. Students may petition for a modification or waiver of requirements that seem inappropriate in their particular case. Such petitions must have the approval of the student's Faculty Advisor and Committee. Petitions must be approved by the Director of the EEB graduate program and by the higher unit, if any, responsible for the particular requirement (often, the DGS or the UGS).

(2) Alternative career objectives
Students are encouraged to consider courses or training beyond the formal requirements of the programs described here as possible preparation for careers in areas outside traditional academia. Students may wish to elect courses in such areas as computer science or information technology, technical writing, applied ecology, etc. It is possible in some instances for a student to complete the M.S. in Environmental Science (MSES) degree in the School of Public and Environmental Affairs (see above) while satisfying the requirements for the Ph.D. in EEB. Research in applied areas of biology may be proposed for the Ph.D. or M.A. degree. Other alternatives may be available to students who have interests in mathematics, programming and data analysis, or geology.
Box 4: Procedure for transfer from Ph.D. to Master’s degree in the Department of Biology

Since Ph.D. students were admitted to the program with the understanding that they will complete Ph.D. research, changing to the Master’s degree requires appropriate approval. To request admission to the Master’s degree from the Ph.D. it is necessary to:

(1) **Eligibility and Lab:** To be eligible to transfer to the Master’s, it is imperative that you have completed the necessary course work and have identified an advisor and two faculty members who will serve on your advisory committee. If you plan to change to a different lab than the one you were conducting your Ph.D. research in, you need to submit a detailed proposal and justification for the change to the EEB GPD.

(2) **Form:** Complete a “Request to Transfer from Ph.D. to Master’s degree Form” that is signed by you, your thesis advisor, and members of your thesis committee (available [here](#)). Submit the form to the Advisor for Graduate Affairs, the EEB GPD, and the DGS.

(3) **Request Letter:** Submit a letter (electronic is acceptable) to the Director of Graduate Studies requesting permission to transfer to the Master’s degree. The letter should describe the reasons for requesting the change and if you plan to change labs and/or your advisor, include a justification and a brief project proposal. The letter should be cc’d to the Advisor for Graduate Affairs and the EEB GPD.

(4) **Letter from Advisor:** Your Master’s thesis advisor must also submit a letter (electronic is acceptable) to the Director of Graduate Studies and the Director of the appropriate Graduate Program stating that he/she will serve as the Master’s advisor in his/her lab until completion the degree and indicate if current progress is consistent with the expected date of completion. The letter should be cc’d to the Advisor for Graduate Affairs (Gretchen Clearwater).

**Next steps:**

**Approval:** The DGS and the EEB GPD will review the request. If the request is granted, the student will meet with the EEB GPD to verify progress towards fulfillment of credit requirements. If the request to transfer is approved, the Grad Advisor will inform the College of Arts and Science that the degree goal has changed. **If the request is not approved, the student will not be allowed to continue in the graduate program.**

**Support:** The DGS will lay out the specifics of future support in the department as a MS student. Support will be granted solely on the availability of Alships unless the advisor will offer support on a grant (as an RA). Support is not guaranteed. The student must consult the Advisor for Graduate Affairs regarding the availability of AI positions by Oct 1 for Spring classes or by Feb 15 for Summer and Fall classes.