

GRADUATE GUIDELINES
FOR THE MASTERS DEGREE IN THE
DEPARTMENT OF BIOLOGICAL SCIENCES
ECOLOGY AND EVOLUTIONARY BIOLOGY PROGRAM (EEB)

Revised Fall 2008

ECOLOGY AND EVOLUTIONARY BIOLOGY PROGRAM (EEB)

The Ecology and Evolutionary Biology Program (EEB) is within the Department of Biological Sciences and is an interdisciplinary program involving faculty and students from the Departments of Biological Sciences in the College of Arts and Sciences and the Department of Biomedical Sciences in the College of Osteopathic Medicine. The guidelines in this document are for MS students in EEB and comply with the departmental by-laws and university graduate guidelines. However, this document defines specific time-lines, course requirements, breadth requirements and examination formats for students in the EEB graduate program. These guidelines were established by the EEB faculty to ensure that all students in our program receive broad-based training in ecology, morphology, and evolution. Students should view these guidelines as a time schedule to be completed as reasonable progress toward their degree. Failure to meet the following guidelines can result in dismissal from the program.

Students entering the EEB program should consider themselves colleagues in the EEB focus group and take an active role as members of the program. The EEB faculty believe firmly that a vital component of a student's training is the interaction and collaboration with all members of the program, including undergraduate and graduate students. Similarly, students are encouraged to interact and collaborate with faculty and students that are not in EEB. The student's advisor will help in the formulation of a thesis project; however, the student is expected to identify a topic of mutual interest appropriate for their research. The faculty strongly believe that, with their help, students should develop an independent research program that defines them as scientists.

ENTRY EVALUATION

On arrival to the Ecology and Evolutionary Biology program, a student's level of preparation for the degree pursued will be reviewed by EEB Graduate Steering Committee (GSC). This committee will consist of the student's preliminary choice of research advisor and the two members of the graduate steering committee (GSC) elected annually by the EEB Program faculty. The meeting will be organized by the GSC and will occur **before or during the first quarter of study**.

During this meeting:

1. The student will be briefed on the EEB guidelines and expectations and the consequences of failure to meet these requirements. Any questions or concerns about the guidelines should be addressed at this time.
2. Preliminary research interests will be discussed.
3. Course deficiencies will be identified and the *EEB Graduate Student Curriculum Plan* will be recorded and approved by the student and GSC.

PROGRAM OF STUDY IN EEB - MS in Biological Sciences

The following guidelines identify the academic responsibilities necessary to complete an MS degree in the EEB Program. EEB masters students must complete 6 graded courses not including BIOS 794, Ecolunch. At the GSC meeting, the specific requirements will be established based on the student's need to increase their background and training. The GSC will develop specific program of courses for each student.

I. *EEB Course Requirements*

1. All EEB MS students must show competence in univariate statistics. This requirement is fulfilled by taking BIOS 670 BIOSTATISTICS I (5 CH)
2. The EEB Program requires that students show competence in the disciplines of ecology, evolution, and morphology. Therefore, required course work will be distributed across these fields (Table 1 below).

EEB CORE REQUIREMENT: MS students must take three courses in one core area and two courses in a second core area.

TABLE 1. EEB PROGRAM AREAS OF EMPHASIS

<u>ECOLOGY</u>	<u>EVOLUTION</u>	<u>MORPHOLOGY</u>
Bios 516 Biogeography	BIOS 525 Evolutionary genetics	OUCOM Medical gross anatomy
BIOS 577 Population ecology	BIOS 557 Animal systematics	OUCOM Neuroanatomy
BIOS 578 Community ecology	BIOS 573 Animal behavior	BIOS 503 Comparative vertebrate anatomy
BIOS 562 Physiological ecology	BIOS 682 Behavioral Ecology	BIOS 530 Invertebrate zoology
BIOS 531 Aquatic biology	BIOS 558/559 Amphibians/Reptiles	BIOS 520 Comparative vertebrate biomechanics
BIOS 529 Marine biology	BIOS 565 Ichthyology	BIOS 536 Field Entomology
BIOS 581 Conservation Biology	BIOS 571 Ornithology	BIOS 880B Techniques in electron microscopy
BIOS 797 Seminar in Conservation	BIOS 574 Mammalogy	

Additional course requirements may be made at the discretion of GSC in consultation with the advisor. These requirements will be based on the student's area of interest, research focus, and prior course work. The student, in consultation with their advisor, may submit a written request to the GSC that other courses not listed may substitute where appropriate.

- C) EEB MS students must enroll in 1 credit of BIOS 794 Ecology Colloquium ("Ecolunch") during all academic quarters unless there is a conflict with field research or teaching. **Each EEB MS student must present 1 seminar in BIOS 794 during the second year** and will register for 2 graded credits that quarter.

Academic Standards- Students are bound by the latest version of **By Laws of the Graduate Program in Biological Sciences**. Note (Section VIII, A) that students will receive a letter of concern if their GPA falls below 3.2 and that any student that receives a second grade of a C+ or below is likely to be dismissed from the program.

II . Timetables and Forms

It is the student's responsibility to check the university and departmental timetables to ensure that deadlines for applying for graduation are met. The EEB faculty also expects students to adhere to the responsibilities and deadlines identified in this document. All of the required forms listed below are provided online or from the Department of Biological Sciences (DBS) Graduate Secretary.

The student is required to bring the appropriate forms to all meetings and to ensure that the forms have been sent to the appropriate EEB, Departmental, and University representatives.

1. **MEET WITH EEB GRADUATE STEERING COMMITTEE (GSC)—First year, early first Quarter.** At the conclusion of this meeting a completed copy of the **EEB Graduate Student Curriculum Plan Form** must be provided to the student, their advisor, chair of the GSC, and the student's departmental file.

2. **ORGANIZE THESIS COMMITTEE—By the end of the winter of first year.** At this time the student should submit to the Departmental Graduate Secretary the completed [CAS #5 - Thesis Committee Information Form](#).

3. PROPOSAL DEFENSE

- **The defense of the thesis proposal must be held before the end of spring quarter of the first year.** Distribute thesis research proposal to each committee member **at LEAST two weeks** prior to proposal defense and only after approval by the thesis advisor. **The proposal must be submitted to each committee member in hard copy.**
- The student must bring to the proposal defense the **DBS Report of Thesis Proposal Examination**. The student must provide completed copies of the form to the advisor, all committee members, and the DBS graduate secretary who will forward the appropriate forms to the college. It is the student's responsibility to schedule the examination at a time when all committee members can attend.

4. THESIS DEFENSE

- Set Thesis defense date – Spring Quarter of the second year
- Distribute copies of the thesis to all committee members—**at least Two Weeks** prior to defense and only after approval by the thesis advisor. **The thesis must be submitted to each committee member in hard copy.**
- The student must also provide the DBS graduate secretary AND THE COLLEGE OF ARTS AND SCIENCES with the [CAS #7 - Arrangements for the Oral Examination on the Thesis Form](#) **at least two weeks prior to the defense**. Note: If the committee has changed the student must resubmit a DBS Thesis Committee Information Form and /or DBS Thesis Advisor Information Form.
- Thesis Defense. The student must bring to the defense a copy of the [CAS #8 - Report of the Oral Thesis Examination/Thesis](#)

Defense. The student will be responsible for delivering a completed copy of each form to committee members and the DBS graduate secretary who will forward the appropriate forms to the college.

III. Examinations

There are two major examinations for MS students: the proposal defense and the thesis defense.

1. THE PROPOSAL DEFENSE:

Prior to the proposal defense, the student must establish a thesis committee. The thesis committee will consist of the student's advisor and a minimum of two additional committee members (all must be in attendance at the thesis defense), selected in consultation with the thesis advisor. The proposal defense is an oral defense of the student's thesis research proposal. The defense should occur by the end of spring quarter during the first-year. Students whose research involves field work should recognize that if they need to begin their work in the spring, they should make very effort to have their proposal approved earlier than the guidelines require.

The proposal defense will be attended by the student's committee. **At least two weeks** prior to the proposal defense, and only after considerable review by the thesis advisor, the student is required to submit to each committee member a written proposal of their research plans. Students are strongly encouraged to discuss their proposal with committee members to identify any weaknesses or problems prior to the defense. Immediately preceding the defense, the student will present the proposed research as either an Ecolunch presentation or as a private (committee only) 15 - 20 minute presentation. The length of the defense is at the discretion of the committee, and the discussion will pertain to the student's proposed research. There are three outcomes to this defense:

- 1) Pass.
- 2) Fail, with invitation to revise and re-defend the proposal by a specific date. *Students that fail a second proposal defense are no longer eligible for a MS in our program.*
- 3) Fail, leave the program.

The student is required to bring the necessary forms to the examination, and ensure that the forms become record. The approved proposal forms the expectations of the research to be completed for the MS degree. The outcome

of the proposal defense will be reported to the DBS graduate committee, the student, and all members of the examination committee by the chair of the student's thesis committee.

2. THESIS DEFENSE:

This is the final step in the process for MS students. The thesis committee normally is the same as the proposal committee; however, the faculty recognize that certain committee members may not be available for both exams and therefore do not require that both committees have exactly the same membership. **At least two weeks** prior to the defense, the student must provide all committee members with a copy of the thesis **that has been approved by the advisor** (thus the thesis will have gone through revisions with the advisor **WELL BEFORE THIS TIME**). Students are encouraged to meet with the members of their committee to discuss their thesis and identify any weaknesses or problems prior to the defense. The defense has two components. First a public seminar will be held that is open to any member of the department and the general public (Ecolunch is not an appropriate venue for the thesis defense seminar). The public seminar will be followed by a question and answer period in which any member of the audience may ask questions. Following the public seminar, the student will defend their thesis with their thesis committee. There are two outcomes to this defense:

- 1) Pass—any revisions to the thesis recommended by the committee must be made prior to graduation.
- 2) Fail—the student will have the option to re-defend within one year or before the end of their seventh year enrolled at Ohio University, whichever comes first.

It is the student's responsibility to bring the appropriate forms to the defense and to ensure that all forms are received by the DBS graduate committee, the CAS Graduate Office, the student, and all members of the examination committee.

TEACHING REQUIREMENTS

Excellence in teaching is an essential aspect of a career in academia. Thus, all students in the EEB program, regardless of their funding source must participate in teaching. The work load will vary from course to course. Teaching assistants are expected to attend laboratory preparation meetings, teach their assigned laboratory or recitation sections, attend the corresponding lectures, and participate in the grading of lecture exams.

Students completing a MS must teach a minimum of one quarter. The minimum teaching requirement can be fulfilled at any time during the student's tenure. Students funded through a departmental teaching assistantship will be expected to teach during each quarter of funding.

PROFESSIONAL EXPECTATIONS OF GRADUATE STUDENTS ENROLLED IN THE PROGRAM OF ECOLOGY AND EVOLUTIONARY BIOLOGY

The preceding document was developed primarily to assist graduate students in EEB with the successful completion of their graduate program. By its very nature it is geared largely towards required course work, committees, administrative issues, and timelines. While these are all very necessary aspects of a graduate program, they fail to address the primary reason you are in graduate school—to be trained as a professional scientist. When a student completes their studies at Ohio University and prepares for further graduate training or employment, they will not be judged on the course work they pursued in graduate school. Peer-reviewed papers, grants, presentations, etc. are the criteria that determine the suitability of an applicant for a particular position. One should keep in mind that their professional career as a scientist begins with the initiation of graduate training.

We provide here a brief discussion of items to consider seriously as part of graduate training. Consult with your advisor, other faculty members, and various texts for additional sources of information and philosophies.

Philosophy of Graduate Education

Graduate school differs dramatically from undergraduate education in as much as research is the primary emphasis (not course work). The course work a student takes is meant to strengthen their knowledge base and to provide you with the theoretical framework and skills necessary to complete your research.

Remember also that you are not here to be *taught*—you are here to *learn*. Graduate education is much more self-directed. Material delivered in a lecture or a textbook only represents a fraction of the material you should be reading and thinking about. Use the primary literature, review articles, and other texts to critically consider how paradigms develop in your discipline and work to understand modern problems and issues.

Build a Professional Toolbox

Students should begin building a professional library. Purchase and read as many books as time, money, and energy will permit. Build your library for both breadth and depth; i.e., read widely across disciplines and then build your specific area of research interest with great depth (from introductory texts to the most recent reviews). While these texts will help you with the more immediate needs associated with comprehensive exam and proposal preparation, they will ultimately become part of a professional library that you will rely on heavily for the rest of your professional career as teacher and researcher. Many publishers provide excellent student discounts, so take advantage of the opportunity.

Computer resources are available to students free of charge in most department and university labs. Research labs also provide the necessary computer hardware and software for high-end research applications. However, students need to use this tool with such great frequency and intensity for everyday purposes such as word processing, data analysis, and electronic communication that proprietary usage is almost essential. Therefore, it is highly recommended that students purchase their own personal computer if they can afford to do so.

Build a Curriculum Vita

The curriculum vita (CV) is, for all intents and purposes, a chronicle of scientist's professional career. The CV is the primary instrument that will determine one's fate as a professional scientist (i.e., employed or unemployed). Begin building a CV early. Carefully record all journal publications, abstracts published for papers presented, grants applied for and received, society memberships, invited seminars, graduate course work, committee responsibilities, workshops attended, etc. Below are several activities that contribute to building a CV, the objective is to build a balance among these areas so that one demonstrates abilities in grantsmanship, publishing, and public presentation.

- ***Publish***

Publishing in peer reviewed journals is the most important task of a graduate student. This is how the scientific community judges the merit of the work a student or colleague does. Most job applicants in ecology and evolutionary biology typically have from 7 to 15 publications in peer reviewed journals listed on their CV. Every project and experiment one undertakes should be thought of in terms of how it will contribute to a publication. The Department of Biological Sciences encourages theses to be formatted as journal articles. To that end, articles that are in review, press or are published can be chapters in the thesis or thesis.

- ***Apply for Grants***

Although it is the thesis advisor's responsibility to provide the facilities and initial support for the student's research, the student will be expected to make every effort to seek out and obtain funding for additional research needs. Grantsmanship is an extremely important skill to develop for the professional scientist. Take a university workshop on grantsmanship or consult several of the very good texts available on grant writing. EEB MS students should apply to a variety of local (Ohio University), regional (e.g., Ohio Biological Survey), and national (e.g., Sigma Xi) small grants programs designed largely for graduate research.

- ***Join Professional Societies & Subscribe to Journals***

MS graduate students, in particular, should be members of at least one professional biological society. Becoming a member of a professional society early in your career has several benefits. First, it is an excellent way in which to stay abreast of recent developments in the field (via the journal). Second, members receive notification for times and locations of annual meetings. Third, members are placed on mailing lists and receive discounts from publishers on professional books. Lastly, students add to their research library which serves as a valuable resource for themselves and their future students. Again, substantive student discounts are available in most societies for membership and journal subscriptions.

We recommend society membership at two levels. First, join a nationally recognized general society with emphasis on your main field of study (e.g., The Society of Integrative and Comparative Biology, The World Congress of Morphology, The Society for the Study of Evolution, The American Society of Naturalists, The Ecological Society of America, and The Society of Systematic Biologists). Second, become a member of a society that covers the taxa with which you work (e.g., The American Ornithologists' Union, The American Society of Ichthyologists and Herpetologists, The American Mammalogy Society, The Society of Vertebrate Paleontology).

- ***Attend Professional Meetings and Present Recent Findings***

Students should plan to attend a professional meeting and present a poster or oral paper during their second year. This is an excellent opportunity to meet and talk with many of the people whose work you have been reading over the years. Furthermore, as students near the completion of their degree, meetings are excellent places to make contacts for jobs, doctoral programs, and other opportunities. Presenting a paper gives other people in the field an opportunity to see your work, and frequently they provide helpful comments that can

improve your research. There usually are departmental funds for travel to meetings when papers are presented.

A scientist's success is determined by how well they are known within the scientific community. Communication through publications, presentations, and grants is the primary mechanism by which scientists become recognized for their accomplishments. The Curriculum Vitae is a record of a person's accomplishments and communications. If you follow the above suggestions you will be well-prepared and competitive in the scientific job market.

EXPECTATIONS OF THE STUDENT'S GRADUATE ADVISOR AND COMMITTEE

The graduate advisor and committee members should serve as mentors and role models for their students. The advisor's primary role in graduate education is to provide guidance throughout the student's career. The EEB faculty recognize that the amount of guidance depends on the student and their previous training. This document identifies the minimum necessary interaction between students and faculty for the completion of a degree; however students that can complete this training with this minimal interaction are exceptional. The EEB faculty recommend that students meet with their advisor regularly so that the student's progress can be evaluated on a regular basis. **It is the advisor's responsibility to ensure that the student is making reasonable progress in all areas of graduate training.** If it is the advisor's opinion that the student is not making reasonable progress, they must clearly indicate problems to the student and provide appropriate advice so that the student can either rectify the problem or modify their goals commiserate with their progress. The advice can pertain to all aspects of graduate training, course work, exam preparation, research, teaching, etc.

FOR A CURRENT LIST OF EEB FACULTY AS WELL AS THOSE THAT CAN SERVE AS GRADUATE ADVISORS PLEASE SEE THE [EEB WEB PAGE](#).