

MASTERS OF ARTS IN ECOLOGY, EVOLUTION, AND CONSERVATION BIOLOGY

The Master of Arts in Ecology, Evolution, and Conservation Biology offers a comprehensive curriculum that combines advanced biological sciences with a seamless integration of environmental policy, project planning, and research experience. This distinctive interdisciplinary approach empowers students with a diverse array of opportunities to shape their future careers.

Graduates of the M.A. program are well-prepared to pursue further education through Ph.D. programs or to enter the job market directly, taking on roles as accomplished scientific researchers, educators, or administrators within NGOs or government agencies dedicated to the conservation of natural resources.

At E3B, the M.A. program is uniquely structured around a project-based framework, requiring all students to undertake a substantial capstone project as a key component of their degree. This capstone project offers two distinct pathways: the Research Thesis (hypothesis testing) and the Practical Thesis (applied innovation). This structure allows students to tailor their coursework in alignment with their individual interests and aspirations, while also providing a platform to cultivate supplementary skills and hands-on experience.

With the flexibility to shape their educational journey and develop specialized expertise with their capstone project, students at E3B not only receive a world-class education but also gain a competitive edge in their chosen fields.

M.A. COURSE REQUIREMENTS

To earn their M.A. degree students must complete:

2 Resident Units (A Resident Unit (RU) is equal to one semester at full-time tuition).

43 Points (Credits)

All students must complete the following Core Courses:

1. Fundamentals of Ecology (EEEE GR6112) **and** Fundamentals of Evolution (EEEE GR6110; 3 credits each)¹
2. Conservation Biology (EEEE GR6905, 3 credits).
3. Four Semesters of Research Seminar (EEEE GR6300, 1 credit per semester).
4. Thesis development seminars (EEEE GR4850 and EEEB GR4851) for 3 credits each.
5. Statistics (EEEE 5005/5015 or more advanced, with approval)

In addition to the core courses listed above, students must also take a balance of course electives as outlined below.

6. One or more Policy electives
7. One or more Ecology/Behavior/Conservation Biology electives
8. Additional relevant electives to meet the 43-credit graduation requirement

A list of courses that meet these elective requirements will be created prior to each semester. Students must consult with the DMAP if they identify a course that they believe fulfills an elective requirement that isn't on the list of approved courses.

¹ A student can petition to place out of one or both of these requirements if significantly advanced training in ecology and/or evolution can be demonstrated. The petition is evaluated by the course instructor(s), the DMAP, and the student's advisor. Students that are granted a waiver will still need to meet the 43-credit degree requirement by taking additional elective courses.

To fulfill the program requirements, students must complete the required credits with a combination of elective courses, directed readings and directed research. Students may not take more than 12 credits of Directed Readings/ Directed Research.

Course planning

The M.A. in Ecology, Evolution, and Conservation Biology program is designed to offer students the flexibility to curate a personalized course lineup that aligns with their individual interests and goals. It is crucial to plan your academic journey thoughtfully to fulfill the degree's required courses. To ensure the best fit for your aspirations, collaborate closely with your advisor and the Director of the Masters Program (DMAP) to determine a well-suited combination of elective courses.

Please note that not all courses are available each academic year. It is essential to plan ahead to accommodate this variability. For information regarding the future availability of specific courses within E3B, you are encouraged to refer to the University's Directory of Course Offerings and Academic Calendar for comprehensive schedules across various Schools and Departments.

Minimum Grades

In the context of our graduate program, it is generally expected that students maintain a *minimum grade of B* in their coursework. This requirement extends to all core courses outlined above, with the exception being policy-related courses, where a minimum grade of B- suffices. While there exists the possibility for students to engage in discussions with their respective instructors to explore avenues for grade enhancement through supplementary efforts, such arrangements are not guaranteed, and any additional work must be concluded by the subsequent summer semester.

Should a student receive a grade lower than B (excluding an F), they will still earn credit for the course, and these credits will contribute towards their degree progression. However, it is essential for students to uphold a minimum GPA of 3.00 each semester. In the case of part-time students, the GPA calculation is based on the completion of 12 credits. Failure to meet the GPA threshold will result in academic probation. Students who do not demonstrate improvement after one semester of probation will be referred to the faculty for further evaluation, which may potentially lead to dismissal from the program.

It's important to note that a GPA falling below 3.00 will render students ineligible for graduation, underscoring the significance of maintaining academic performance at or above this threshold throughout the program.

THE CAPSTONE PROJECT

The Capstone Project is a culminating opportunity for students at E3B to design, participate in, and execute research, outreach, or educational activities. Flexibility is central to this project, enabling diverse exploration and outcomes. Collaborating with advisors, committees, and the DMAP, students identify a fitting project, which could be a Research (hypothesis testing) or Practical Thesis (applied innovation). By the end of the first year, committee and DMAP approval of a project proposal is necessary. Final project decisions consider its alignment with the M.A. degree scope and study program of the student.

In various forms, the Capstone Project showcases: 1) Substantial independent critical thinking and analysis in the field; 2) A conclusive written summary; and 3) A presentation during a special research seminar in the final semester. Projects with publishable potential in peer-reviewed literature are encouraged, especially for aspiring researchers. Archiving the final work in Columbia Academic Commons, an open access repository, is recommended.

Through registering for Directed Research, students can earn up to 12 credits for fieldwork, data collection, and research, with credit allocation based on workload (details in 'Scheduling Field Work' below).

Research Thesis

A Research Thesis involves original data collection and analysis components and can be based on field, laboratory, and pre-existing data. Research-based Capstone Projects demand substantial time commitment for research leading to the final thesis. Research typically aligns with ongoing E3B or partner institution activities. Exploring external projects is feasible if they meet degree, program, and mentoring criteria, with approval from an Advisor and DMAP. Students should be able to conduct their research work within an external project as long as (a) the research is considered suitable for a Master degree thesis, (b) it is in line with the study program of the student and (c) there is a suitable Advisor willing to mentor the student.

Practical Thesis

The Practical Thesis showcases the application of ecology, evolution, and/or conservation biology to real-world issues. It integrates research, academic knowledge, and practical skills into a coherent outcome. Original data collection isn't mandatory, but a significant scholarly contribution to a well-designed final product is essential. Collaboration with stakeholders or practitioners is encouraged, and the project committee should include relevant members. Practical Thesis examples include, but are not limited to design of and/ or significant work in:

- Educational activities (courses, curricula, exhibits, outreach programs – including innovative media, science communication)
- Software, web-based, or other forms of innovative analytical, research, or educational tools
- Integration of art and ecology, evolution, and conservation, e.g. photo essay of climate change, review and exploration of environmental art

Research and Practical Thesis Formatting Guidelines

The M.A. Thesis, traditionally shorter than a Ph.D. dissertation, upholds publishable quality. The guidelines for formatting adheres to Ph.D. dissertation guidelines, which are available online: <https://www.gsas.columbia.edu/content/formatting-guidelines-and-dissertation-template>. If a student intends to submit their thesis for publication, they may follow the Author Guidelines for dissemination. Research Theses often follow a journal manuscript format, including introduction, methods, results, discussion, and conclusion sections. Early coordination with the committee establishes thesis formatting expectations prior to final submission.

ADVISORS AND COMMITTEES

The formation of a comprehensive committee is a crucial step in the capstone project process. Each student is required to assemble a committee comprising three members, with specific criteria in mind. This committee configuration necessitates a project advisor, along with two additional committee members. Among these, at least one must be affiliated with E3B/EICES (Earth Institute Center for Environmental Sustainability), and it is essential to include a core E3B faculty member.

Selecting a project advisor is a priority, with this decision ideally made within the first semester of enrollment. Project advisors, who must be E3B/EICES faculty members², assume a pivotal role in guiding and directing MA students throughout their capstone project journey. This encompasses delineating project scope, study design, logistical aspects, data analysis, and the writing process. To ensure a harmonious and effective advisor-student relationship, it is advisable to discuss and mutually agree upon guidelines that establish expectations and practices for both parties, in conjunction with all committee members.

The remaining two committee members should be chosen following discussions with the project advisor and coordination with the DMAP. It is imperative that these committee members possess expertise pertinent to specific facets of the project, contributing by furnishing tailored resources, critical assessments, and career guidance as needed to bolster the student's training and project completion.

While the ideal timeline for committee member identification spans the Fall term, circumstances may dictate the need for flexibility. *At the very least, students should have identified two committee members by the conclusion of the Add/Drop period in the Spring term*, typically taking place around the initial week of February. Any modifications or updates to the committee composition should be promptly conveyed to DMAP. This meticulous committee formation process lays the foundation for a robust and well-supported capstone project experience.

SCHEDULING FIELD WORK

Fieldwork is typically conducted during the summer between the first and second year. To gain up to 12 credits for their fieldwork, students should enroll in directed research during the Fall of their second year. Recognizing the challenges of completing all field research within a single summer, research thesis-based M.A. students may request a Research semester. This permits one of their four semesters to be spent conducting research in the field, alongside the summer period.

Determining the suitability of extending fieldwork involves a thoughtful decision-making process, engaging the student's committee and the DMAP. Requests for a research semester should be submitted to the DMAP by the end of the summer between the first and second years, supported by clear motivation aligned with research and course plans. A comprehensive assessment of any remaining core requirements is undertaken before approving a Research semester. During the fieldwork semester, students are exempted from registering for the Research Seminar.

² If you are uncertain of a faculty member's status, check with the Director of Administration and Finance (DIRECTOR A&F), the Director of Graduate Studies (DGS), or the Director of the MA Program (DMAP).

FUNDING PROJECT WORK

Students have the opportunity to seek financial support through E3B MA Student Research Grants, potentially securing up to \$2,000 to bolster their thesis project (pending fund availability). Typically pursued in the second semester of the program, grant applications necessitate a comprehensive project description and budget. Allocated funds are designated for the outlined purposes in the application. For additional backing, students are encouraged to [apply for the GSAS Matching Grant](#), offering up to \$300 once they have secured the E3B Grant.

External funding avenues are also actively encouraged. The process of identifying potential funding sources and crafting project proposals will be navigated in the mandatory course, MA Thesis Development. This proactive approach empowers students to harness both internal and external funding opportunities, facilitating the realization of impactful and comprehensive thesis projects.

CAPSTONE PROJECT COMPLETION

The final Capstone Project must be submitted to the department by the Wednesday prior to Commencement.

For Spring semester graduates, in April, a form is provided, requiring signatures from the advisor and committee members to approve the Capstone Project and recommend the student for degree conferment. This form is due the Wednesday before Commencement. Securing all signatures is the student's responsibility. If a committee member is abroad, advance arrangements should be made.

Completing capstone projects demands considerable time. A working final draft should ideally be submitted to the committee by mid-March, granting members ample time for revision suggestions. A minimum 14-day review period is expected; requesting a shorter duration is an exceptional courtesy and not always feasible due to faculty commitments.

Submission entails a electronic version (PDF) of the Capstone Project, along with a combined signed Thesis Approval Form, emailed to DMAP and DAAF, is mandatory. Archiving data and submitting work to the Columbia Academic Commons is encouraged, potentially leading to public access through the E3B website.

GRADUATION

Students **MUST** apply to graduate by the applicable deadline for their desired commencement ceremony. See the [Registrar's website](#) for up-to-date graduation application dates.

PROGRESS REPORTS

MA students are required to arrange a meeting with the DMAP each semester to assess progress and explore future directions. While these meetings maintain an informal tone, they serve as valuable checkpoints for students to stay aligned with their academic trajectory. These discussions enable faculty to periodically gauge student advancement and intervene if challenges or complications arise, benefiting both students and the graduate program.

An annual letter will be provided to students, outlining their achievements, and pending tasks essential for adhering to the graduation timetable.

READING ASSISTANTSHIP

M.A. students have the option of registering with the Department for paid Reading

Assistantship in undergraduate courses. Reading Assistants support a course instructor throughout a semester, e.g. Teaching Assistant. The Reading Assistantship will allow students to develop additional skills for a variety of professional directions that they may choose to follow. Reading Assistantships are voluntary and limited in number based on the needs of the department and allocations from the Graduate School of Arts and Sciences. The DAAF or DAAF will send out a request during the spring semester for interested students to indicate their availability during the following academic year.

INTERNSHIPS FOR M.A. STUDENTS

Pending consultation with and approval of the DMAP, students may use internships as substitutions for elective coursework. Registration for Directed Research ensures that credit will be given for the work.

DIRECTED READINGS

Students have the option to collaborate extensively with a faculty member in a specialized course of their choosing. As part of this, they can opt to replace one of the ecology or conservation science electives with a directed reading or directed research module. To facilitate this substitution, prior endorsement is essential and can be sought through the Directed Readings form. However, it's important to note that the policy elective cannot be satisfied through Directed Readings. Approval for such substitutions hinges on showcasing that Directed Readings offers a distinct learning experience unattainable in standard course formats. It's worth mentioning that Directed Readings focused on thesis work cannot be utilized as a substitute for an elective course.

CONFERENCE ATTENDANCE AND TRAVEL

Pending the availability of funds, M.A. students can receive up to \$750 from the department in support of travel to a scientific meeting (approved by the DMAP) any time after their 1st year in the program. In most cases, students are likely to attend meetings in their second year, when they have the greatest chance of presenting their own research (which is strongly encouraged!). Students are also encouraged to apply for matching funds from GSAS for conference attendance.

Reimbursements for travel and business expenses will be made **AFTER** the trip has occurred. Lodging, travel expenses and registration fees can be reimbursed. To receive reimbursement, you must:

- provide documentation that you actually attended the conference (e.g. a registration receipt).
- submit your Travel Business Expense reports within 2 weeks of arriving back to the USA.
- fill out your forms online from the E3B website at:
<http://e3b.columbia.edu/resources/>
- Submit original receipts. If you pay with a credit card, you will also need to submit a credit card statement showing the expense(s) in question.
- if you make purchases in a foreign country, you must get the currency conversion for the exact dollar amount. Use <http://www.oanda.com/> this is the only site Accounts Payable will honor.

Some general words of advice regarding reimbursement procedures:

Advance planning is critical: inform yourself in advance of the expenses that can be covered, and how to process the paperwork to get a reimbursement. The DAAFor the Administrative Assistant can help you here. If established procedures are not followed, your account with the University may be jeopardized (you may not get reimbursed), especially since these transactions may be audited by the IRS (Internal Revenue Service).

It takes about *two weeks* for the University to process payments after submission of documentation. During the summer, be aware that June 30 is the end of the fiscal year. If you attended a conference before June 10, be sure to present your paperwork for reimbursement by June 10 at the latest. **When you travel, always keep all your original receipts. They are essential.**