



# Graduate Student Handbook

***Please Note:*** As of 2009 the Ph.D. requirements have changed.  
All students entering the program in 2010 must look to  
**Page 46** for the new Ph.D. requirements.

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## ABOUT THIS HANDBOOK

This handbook was created as a guide for students and faculty in the Department of Ecology, Evolution & Environmental Biology (E3B) at Columbia University. The handbook is always under revision. Therefore students and advisors with pressing questions are encouraged to contact their advisor or the Academic Department Administrator for clarification. Additional information about E3B may be found in the Graduate School of Arts and Sciences (GSAS) Bulletin online at: <http://www.columbia.edu/cu/gsas/sub/bulletin/site/map/index.html>), FACETS (Facts About Columbia Essential to Students, online at: <http://www.columbia.edu/cu/facets/>), or on the E3B department webpage: [www.columbia.edu/cu/e3b](http://www.columbia.edu/cu/e3b).

## E3B'S MISSION STATEMENT

The Department of Ecology, Evolution & Environmental Biology (E3B) at Columbia University was established in 2001. Although we are a relatively young department, we have grown rapidly over the past decade. We now have an internationally diverse student body and a network of supporters at Columbia and throughout New York City. We conduct field research all over the world – in Africa, Latin America, South America, South East Asia – and in our own backyard in New York City. Our affiliated faculty members come from other departments at Columbia as well as from the American Museum of Natural History, New York Botanical Garden, Wildlife Conservation Society, and EcoHealth Alliance. Together we provide an unparalleled breadth and depth of research opportunities for our students.

All of E3B's core faculty members are located in the 10<sup>th</sup> and 11<sup>th</sup> floors of the Schermerhorn Extension building on Columbia's Morningside campus. E3B's adjunct faculty come from all over New York City but are not necessarily located on the Morningside campus. Adjunct faculty members are appointed through the Center for Environmental Research and Conservation (CERC). CERC is located across the hall from E3B, on the 10<sup>th</sup> floor of Schermerhorn Extension. While E3B and CERC share space and interests; they are distinct entities with separate administrative structures, university positions, and budgets.

Our department, in concert with CERC, is committed to studying ecological and evolutionary processes and understanding life, sustaining biodiversity, and ensuring functioning ecosystems in the future. In this endeavor, our professors lecture and research in the fields of evolutionary and ecological theory, natural history, genetics and behavior, ecosystem ecology, biogeochemistry, ecophysiology, disease ecology, marine biology, and restoration ecology, applied ecosystem ecology and microbial ecology. However, conservation is the theme that unites us.

## E3B Faculty

### Core Faculty

Dr. Elisa Bone	Lecturer and Director of Postbac Program
Dr. Marina Cords	Professor
Dr. Ruth DeFries	Chair and Denning Professor of Sustainable Development
Dr. Don Melnick	Thomas Morgan Hunt Professor of Conservation Biology
Dr. Shahid Naeem	Professor
Dr. Dustin Rubenstein	Assistant Professor
Dr. Matthew Palmer	Lecturer and Director of Undergraduate Studies
Dr. Jill Shapiro	Lecturer and EBHS Advisor
Dr. Maria Uriarte	Associate Professor

### Adjunct and Affiliate Faculty at Columbia University

Dr. Philip Ammirato	CU (Barnard, Biology)
Dr. Walter J. Bock	CU (Biology)
Dr. Hilary Callahan	CU (Barnard Biology)
Dr. Joel E. Cohen	CU (SIPA)
Dr. Steve Cohen	CU (SIPA)
Dr. James Danoff-Burg	CU (CEES)
Dr. John Glendinning	CU (Barnard Biology)
Dr. Kevin Griffin	CU (DEES)
Dr. Paul E. Hertz	CU (Barnard Biology)
Dr. Ralph L. Holloway	CU (Anthropology)
Dr. Darcy B. Kelley	CU (Biology)
Dr. Brian Morton	CU (Barnard Biology)
Dr. Paul E. Olsen	CU (DEES)
Dr. Cheryl Palm	CU (Earth Institute)
Dr. Dorothy Peteet	CU (DEES, Lamont)
Dr. Jeanne Poindexter	CU (Barnard Biology)
Dr. Robert E. Pollack	CU (Biology)
Dr. Pedro Sanchez	CU (Earth Institute)
Dr. William Schuster	CU (Black Rock Forest)
Dr. Paige West	CU (Barnard Anthropology)

## E3B Adjunct & Affiliate Faculty

Dr. Alonso Aguirre	EHA
Dr. George Amato	AMNH
Dr. Michael Balick	NYBG
Dr. Brian Boom	NYBG
Dr. Nora Bynum	AMNH
Dr. Kenneth Cameron	NYBG
Dr. James Carpenter	AMNH
Dr. Joel Cracraft	AMNH
Dr. Peter Daszak	EHA
Dr. Rob DeSalle	AMNH
Dr. Susan Elbin	EHA
Dr. Jon Epstein	EHA
Dr. Darrel Frost	AMNH
Dr. Joshua Ginsberg	WCS
Dr. David Grimaldi	AMNH
Dr. Jeffrey G. Groth	AMNH
Dr. Roy Halling	NYBG
Dr. Ian Harrison	AMNH
Dr. Ross MacPhee	AMNH
Dr. Scott A. Mori	NYBG
Dr. Michael Novacek	AMNH
Dr. Kevin Olival	EHA
Dr. Christine Padoch	NYBG
Dr. Claudio Padua	EHA
Dr. Charles Peters	NYBG
Dr. Norman Platnick	AMNH
Dr. Christopher Raxworthy	AMNH
Dr. Kent Redford	WCS
Dr. Robert Rockwell	AMNH
Dr. Howard Rosenbaum	WCS
Dr. Eric Sanderson	WCS
Dr. Scott Schaefer	AMNH
Dr. Randall Schuh	AMNH
Dr. Christine Sheppard	WCS
Dr. Mark Siddall	AMNH
Dr. Scott Silver	WCS
Dr. Nancy Simmons	AMNH
Dr. John Steven Sparks	AMNH
Dr. Eleanor Sterling	AMNH
Dr. Dennis Stevenson	NYBG
Dr. Melanie Stiassny	AMNH
Dr. William Wayt Thomas	NYBG
Dr. Robert Voss	AMNH
Dr. Ward Wheeler	AMNH

**Abbreviations:** **AMNH:** American Museum of Natural History, **NYBG:** New York Botanical Garden, **WCS:** Wildlife Conservation Society, **EHA:** EcoHealth Alliance

## **E3B & CERC Staff**

*(Located on 10<sup>th</sup> Floor Schermerhorn Extension)*

### **E3B**

Ruth DeFries	E3B Department Chair
Lourdes Gautier	Academic Department Administrator (ADA)
Eleanor Sterling	Co-Director of Graduate Studies (DGS)
Maria Uriarte	Co-Director of Graduate Studies (DGS)
Andrés Gómez	MA Program Advisor (MAPA)
Matthew Palmer	Director of Undergraduate Studies
Elisa Bone	Post-Bac Advisor
Jill Shapiro	Advisor for the Major in EBHS
Sara Lizzo	Administrative Coordinator
Maria Estrada-Werst	Administrative Assistant

### **CERC**

Nancy Degnan	Executive Director
Rita Ricobelli	Deputy Director
Shahid Naeem	Director of Science
Miguel Pinedo-Vasquez	Director of International Programs
Minosca Alcantara	Director of Education Programs
Desmond Beirne	Director of Marketing and Student Affairs
Alexandra Varga	Program Manager

### **Post-Doctoral Research Scientists**

Farshid Ahrestani	E3B
Giovani Graziosi	E3B
Tien Lee	EI
Melissa Mark	E3B

## General University Information

### COLUMBIA UNIVERSITY IDENTIFICATION CARDS (CUID)

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Students may obtain a CUID card in 204 Kent Hall. The ID office is open Monday – Friday, 9:00 am to 5:00 pm. The CUID card allows access to all Columbia buildings and is required to check out books from the library. The CUID card is the student’s passport to NYC. Currently the CUID offers discounted admissions to 32 museums. For more information, see here: <http://www.cuarts.com/freemuseums>.

### LIBRARIES

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Students need a CUID to gain access to the Columbia libraries. To gain access to other universities libraries in NYC, students must obtain a semester sticker from the ID Center at Kent Hall. Ph.D. students may also apply for special semester-long loan privileges from Butler Library. All students may renew books online and will be prompted to do so by email a few weeks before the book is due. For access to electronic journals, please visit CU here: <http://www.columbia.edu/libraries>, for AMNH libraries go here: <http://www.nimidi.amnh.org/>.

### WORK SPACES ON CAMPUS

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Below is a list of additional work spaces for students to choose from around the Morningside campus:

- ✓ Psychology Library, 4<sup>th</sup> floor Schermerhorn
- ✓ Earth Sciences Library, 6<sup>th</sup> floor, Schermerhorn
- ✓ Biology Library, Fairchild
- ✓ Business School Library, Uris ground floor
- ✓ Lehman Social Science Library, International Affairs Building
- ✓ Graduate Student Lounge (comfortable seating), 301 Philosophy

### PHOTOCOPYING

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The photocopier is located on the 11<sup>th</sup> floor. The charge for copies is \$0.05/page. Graduate students who wish to use the copier will be assigned a personal ID and code. This machine is available 24/7 for student use. The Administrative Assistant will ask students to pay their bill periodically. There are also copy machines in each of the libraries. Students can purchase cards to use these machines at Butler library. Copiers that offer a full set of services are available in the School of Journalism building in the basement (854-3233) and the School of International Affairs (854-3797). Another copy facility that is open on weekends and offers limited services is located at Lerner Hall, room w301 (in the computer center). These copy facilities are less expensive than the libraries. For more information telephone them or check the Columbia home page.

### PRINTING

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All students have access to ACIS printing which allows them to print a set number of pages/week at any printer on campus. For details, please see: <http://www.columbia.edu/acis/facilities/printers/jake.html>. Please note students are not permitted to print to the faculty and staff printer on the 11<sup>th</sup> floor. E3B has set up a printer for students in room 1021. The IP# is: 128.59.233.209. Students are responsible for maintaining this printer and ordering cartridges.

## POSTER PRINTING

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E3B has a poster printer available for student use, located on the 11<sup>th</sup> floor, in the lab area. The charge is \$2.00 per linear foot, including mistakes. Payment is to be made to the Administrative Assistant.

**Note:** To convert a PowerPoint slide into a full size poster on the Poster Printer you must:

- Open PowerPoint slide you wish to print
- Select Print
- Change “**Print Name to: Adobe PDF**”
- Select “**Properties**”
- Select “**Adobe PDF settings**” (3<sup>rd</sup> tab on top)
- Select “**Add**” (on far right-hand side, 4<sup>th</sup> tab down, next to "Adobe PDF Page Size:" Enter: **Width:54 Height:38**)
- Select “**Add/ Modify**”

## INTERNATIONAL STUDENTS

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Upon arrival, international students should check-in with the International Students and Scholars Office (ISSO) located on 525 Riverside Drive, near 123<sup>rd</sup> Street (<http://www.columbia.edu/cu/isso/isso.html>). ISSO is the best source for international students with questions. Here students may obtain academic clearance and social security numbers. (This is very important if you are expecting stipends). Additionally, students may acquire a form making it easier to arrange a U.S. bank account. Students must also fill out employment forms at the ISSO to get paid. Make sure to fill out the appropriate tax form if your home country has a tax treaty with the U.S. This will save you a lot of money in taxes. **Once you know your social security number, please inform the ADA.** In the aftermath of September 11, 2001, INS rules have changed. Be sure that you understand your visa status and what is expected and permitted by the U.S. government.

## STUDENT STIPENDS

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After receiving a stipend, students may pick up checks at **Student Financial Services, 210 Kent Hall**. Stipends checks are distributed twice a year: early September and early January. Students must be registered to receive their check. Be sure to register early to insure your check is ready on time. Students may also arrange to have checks directly deposited. Please check <https://ssol.columbia.edu/> to confirm you are eligible and complete their online form. International students should note a 14% tax is automatically deducted from their check if their country does not have a tax treaty with the U.S. For more information on tax treaties, contact ISSO. U.S. citizens must file taxes on their stipend before April 15<sup>th</sup>. Since situations vary, we recommend students contact a tax specialist with questions.

## TAX ON FELLOWSHIPS & GRANTS

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Students must pay taxes on their fellowships and stipends. International students are encouraged to attend the ISSO's tax workshops well before April 1<sup>st</sup>. All foreign students receive a W-2 form and have a portion of their fellowship withheld by the U.S. government. American students do not receive a W-2. These differences arise from federal law, and do not reflect university policy. Grants may also be taxable. This can include funds for research and travel etc. One exception is that external grants routed through Columbia's Sponsored Projects (SPA) office are not taxed. The same grant awarded directly to a student will be taxed. However, this is not always an option, as some agencies will only award individuals. Students are encouraged to consult an accountant or tax expert to understand individual issues. Our purpose in including this information in the handbook is to encourage students to think about these matters early and use the right resources. As April 15 approaches, it becomes harder to find personal

attention! If no tax is withheld from your stipend, you may consider paying an Estimated Tax, to avoid unforeseen penalties.

## **OUTSIDE EMPLOYMENT FOR FELLOWSHIP STUDENTS**

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Students who receive fellowship funds administered by GSAS as teaching, research or dissertation fellows must obtain permission from their departments to work part-time for up to 10hrs/week. Part-time employment in excess of 10hrs/week requires the approval of one of the Deans of the GSAS. Students awarded GSAS fellowships are not allowed to work more than 20hrs/week. For further clarification in particular cases, students should speak to the appropriate Financial Aid Officer at GSAS.

## **STUDENT HEALTH INSURANCE**

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Ph.D. students on a fellowship should be aware that this covers only the Columbia University Basic Health Insurance and Health Service Fee. Students are responsible for all other fees. In the 5<sup>th</sup> year of the Ph.D., program, as students do not receive stipends, Columbia continues to levy fees. The department makes every effort to cover health insurance costs for students in good standing for two semesters. In this regard, please think ahead, and discuss your situation with the ADA well in advance.

## **STUDENT SERVICES HOTLINE**

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To learn more about Columbia's services including billing, registration, health services, residence halls, etc., contact the Office of Student Services at their free hotline phone number: 854-4400.

## **HEALTH INSURANCE/IMMUNIZATION**

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Upon arrival students should submit immunization records to Health Services in John Jay Hall. Missing records can lead to a block registration or degree conferral. Full-time students are automatically enrolled in Health Services and Columbia Health Insurance (Aetna). A charge on your account confirms that you are enrolled. If you have other health insurance, you may request a waiver. **There are deadlines for enrollment and for waiving enrollment.** If you are going to the field and need immunizations from Health Services, plan ahead. Not all immunizations are covered by Health Services, and they may be costly. You may want to budget these costs into grant proposals. For more information, please visit: <http://health.columbia.edu/>.

## **BANKING SERVICES**

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Columbia has a credit union that offers checking accounts. It is located on 503B Lerner. Contact 854-8228 for more information. There is also a Citibank branch in Lerner Hall, and ATM machines in Lerner and SIPA. A full Citibank branch is on Broadway and West 111<sup>th</sup> St. and offers student discounts.

## **COLUMBIA UNIVERSITY GYM MEMBERSHIP**

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The gym is located in the Dodge Fitness Center: <http://www.gocolumbiaions.com>. Lockers can be obtained, with valid ID, from 9:00 am to 4:30 pm in the room 439 Dodge. Lockers go quickly, so get there as soon as you can. There is a student access fee. Check with the gym for specific charges.

## **RAPE/ANTI-VIOLENCE CENTER HOTLINE**

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The hotline is 854-HELP.

## **SECURITY**

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The Security Office is located in 111 Low Library. The number is 854-2796. A late night shuttle bus is available to the Columbia Community for service between 110<sup>th</sup> Street and 125<sup>th</sup> Street, between Morningside Drive and Riverside Drive. The bus runs only until 2 am. You may also request an escort to take you home from 2 am until sunrise. Request shuttle bus or escort service by calling 854-SAFE.

**Additional information is available in the publication *FACETS – Facts About Columbia Essential to Students* and on the following websites:**

[www.columbia.edu/cu/facets/](http://www.columbia.edu/cu/facets/)

[www.columbia.edu/cu/students/](http://www.columbia.edu/cu/students/)

[www.columbia.edu/cu/gsas](http://www.columbia.edu/cu/gsas)

## **E3B Facilities**

### **HOURS**

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Regular business hours for E3B and CERC are Monday through Friday, 9:00 am to 5:00 pm.

### **SECURITY AND ACCESS TO 10<sup>TH</sup> FLOOR SCHERMERHORN**

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Students need an active ID to enter the Schermerhorn Extension building during off-hours. If you cannot access the building, please visit the Security office in 111 Low Library. Generally the 10<sup>th</sup> floor elevators are locked after business hours. However, elevators stay unlocked for night classes ending at 8 p.m. After elevators are locked, students may still enter 10<sup>th</sup> floor using the stairs. The stairs have a code that can be obtained from the ADA. A security system is activated on the 10<sup>th</sup> floor after business hours. Please be aware of your surroundings at all times. Do not leave laptops, other valuables or bags unattended. Notify staff immediately if you see any strangers wandering on the 10<sup>th</sup>, 11<sup>th</sup>, or Greenhouse floors.

### **RESERVING CLASSROOM & CONFERENCE ROOM**

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Schedules for the E3B classroom (1015) and conference room (1016) are maintained the Administrative Assistant. If you need to reserve a room or borrow AV equipment, please see the assistant well in advance. These rooms can accommodate PowerPoint presentations as and photographic slides. Please be considerate, keep the rooms neat and do not leave any trash behind.

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### **STUDENT DESK SPACE**

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E3B attempts to give desk space to all Ph.D. students whose primary workplace is Columbia. Desk and room assignments are made by the ADA. Students should not make their own arrangements to 'sublet' their desk space. Because space is limited, students must respect changes to allocations, if made. In some cases students may need to share a desk with one other person, and should be prepared to change their desk space arrangements after one semester if necessary.

### **MAIL**

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Student mail is located in a file cabinet outside the E3B administrative offices. Outgoing mail is located behind the reception area. E3B and CERC faculty/staff mailboxes are also located here. For mailing large packages, students may visit the post office is on 112<sup>th</sup> St. between Broadway and Amsterdam Ave.

### **OBTAINING FORMS**

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Important forms are listed here on our website: [http://www.columbia.edu/cu/e3b/resources\\_forms.html](http://www.columbia.edu/cu/e3b/resources_forms.html). For other forms, please contact the administrative assistant at 212-854-9987. Additionally, grant proposal coversheets may be obtained from the Sponsored Projects Administration (SPA) office. Our representative is Alex Samsky. His email address is [as2735@columbia.edu](mailto:as2735@columbia.edu) and phone number is 212-854-6866. SPA is located at 254 Engineering Terrace.

### **KITCHEN AREA**

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A small kitchen with a coffee maker, refrigerator, microwave, and sink is available on the 10<sup>th</sup> floor of Schermerhorn Ext. Please be respectful of these facilities and clean up after yourself. We are happy to provide these amenities, but we ask that students take responsibility for keeping the space clean and neat.

### **RESTROOMS**

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The women's room is located just outside the 10<sup>th</sup> floor reception area, to the left. Men's rooms are located on the 8<sup>th</sup> floor of Schermerhorn Extension. No key is needed for either restroom.

## General Academic Information

### ORIENTATION

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Orientation for incoming graduate students is held at the beginning of fall semester (around September 1<sup>st</sup>). All graduate students are encouraged to attend the welcome session and to meet entering students. A notice with the specific date is sent out by the first week in August each year.

### RESIDENCY AND EXTENDED RESIDENCE

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A minimum length of “Residence status” is required to obtain a graduate degree at Columbia. One Residence Unit (RU) is equal to one semester of full-time registration. Two RUs are required for the E3B M.A. degree. Six RUs are required for the E3B Ph.D. degree, and four RUs are required for E3B Ph.D. students entering with advanced standing.

RUs are a measure of tuition dollars and do not necessarily equal certain number of credits or courses. However, the accepted measure is 9-12 credits are equal to 1 RU. Students may sign up for more than 12 credits if they can do the work.

Continuous registration is required for all graduate degrees. For special circumstances for leaves of absence please refer to the GSAS Bulletin. After completing the appropriate number of RUs M.A. students must register for **Extended Residence (ER)** status for their second year and Ph.D. students must register for **Matriculation and Fees (M&F)** status for their third year.

Students must register for **Extended Residence** in any semester in which they hold a University appointment (e.g. as a TA or fellow) or are completing work towards a degree requirement (e.g. submitting a literature review, taking qualifying exams, doing a proposal defense, etc.). Registration for Matriculation and Facilities Fees is required during semesters when students are in the field or conducting research. M&F registration for Ph.D. students is required for the semester in which the student defends and submits his/her thesis. Some exceptions do apply, so please refer to the GSAS bulletin and if you have further questions, consult with the ADA.

For part-time M.A. students, please refer to the GSAS Bulletin for quarter-residence and half-residence unit information. You are allowed to take up to two courses if registered for a quarter-residence and up to three courses if registered for a half-residence. The total, whether it is 4 half-residence units or a combination of full, half, and quarter RU's, must add up to 2 whole residence units. GSAS allows 4 years to complete part-time study.

### ADVANCED STANDING AND RESIDENCE UNITS

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Advanced standing is available to Ph.D. students who have already completed an M.A. degree, international equivalent, or equivalent professional degree. On the basis of such work, a maximum of two Residence Units (20 credits) may be awarded for credit toward the Ph.D. degree. Students granted advanced standing are *not* eligible to receive the sequential M.A. degree from Columbia. Students who have not completed an M.A. degree (or equivalent) are ineligible for advanced standing.

Upon admission, the graduate school will forward students eligible for advanced standing to E3B. The DGS will then decide how many credits to grant, depending on the extent prior work. Qualified students must accept advanced standing status if awarded. Indeed, fellowship packages may be based on student's likelihood of achieving advanced standing.

## COURSE SCHEDULE/CALL NUMBERS

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An up-to-date course schedule and call numbers for registration can be located on the web at [www.columbia.edu/cu/bulletin/uwb/](http://www.columbia.edu/cu/bulletin/uwb/). E3B courses are under “E” for Ecology, Evolution, and Environmental Biology. SIPA courses are under “I” for International Affairs. Law School courses may not be on the web. Please contact the Law School directly.

## REGISTRATION PROCEDURE

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Registration dates for the various schools in the University are located at: <http://www.columbia.edu/cu/registrar>. Students may also register during the pre-registration period. This is the best option for those who know they will be away in the field during the registration period.

For registration process details, please refer to the GSAS Bulletin online at: <http://www.columbia.edu/cu/gsas/> and <http://www.columbia.edu/cu/registrar/RegInfo>. Almost everything you need to know about academic matters can be found here. You should activate your registration, even if you are not certain about your course schedule, to avoid a late registration fee. To do so, you may register for one class. If you are unsure about your registration status please speak to the DGS or ADA.

**Don’t forget to register on time.** First year M.A. students should register for one Residence Unit (RU) each semester and second year M.A. students should register for Extended Residence (ER). If you are a part-time M.A. student, please see the “Residency” section above. You may also speak to the ADA if you are still unsure of your status.

All Ph.D. students in their first and second years should register for one Residence Unit in each semester. Third-year Ph.D. students also register for one Residence Unit (RU) in each semester if they do not have advanced standing. Thus most students will register for 6 residence units over the course of 3 years; students with advanced standing will register for only 4 or 5. In the semesters after completing your residence units, you will register either for Extended Residence (ER) or Matriculation and Facilities (M&F) status. If you are fulfilling a degree requirement (such as taking classes or qualifying exams, turning in a literature review, or defending a proposal), you will need to register for Extended Residence.

Matriculation and Facilities (M&F) status is for students who are ABD (all but dissertation), thus who are working only on their research, including writing up. M&F is also the correct registration status for students in the semester in which they defend. Keep in mind your fellowship is provided for a certain number of years, and covers your fees accordingly. **You should therefore fulfill any degree requirements within the semesters/years in which you are supported** (see the “Schedule for Ph.D. progress”). Otherwise, you may need to find other financial resources to cover fees and living expenses for the additional semesters. Note that registering for ER is considerably more expensive than registering for M&F.

The *Inter-University Doctoral Consortium* allows Columbia Ph.D. students (not M.A. students) to take classes at certain other institutions in and around New York. Currently, the following institutions are in the Consortium: CUNY, NYU, Fordham, Stony Brook, Princeton, Rutgers. The GSAS Bulletin provides details. The GSAS Student Services in 301 Philosophy handles registration and grades.

**You cannot drop a course without the approval of your advisor and/or committee** (once the class has started). To approve dropping a course, your advisor should e-mail the DGS and ADA to indicate that you are allowed to drop a specific course.

## SUMMER REGISTRATION

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Ph.D. fellowships do not cover summer classes. However, if a Ph.D. student would like to register for a summer course, they may do so through the School of Continuing Education's special summer programs (<http://ce.columbia.edu/Summer-Sessions>). Students may enroll in these courses without having to pay additional tuition. Interested students should fill out an Application for Summer Tuition Credit. This form can be obtained from the ADA and must be approved by the student's adviser.

Please note that summer tuition credit will be taken out of the subsequent fall fellowship. The tuition stipend will be reduced accordingly. In this case, students may still be responsible for minor fees including health services. Please note that students are responsible for making sure the debits and credits are accurate when processed. If you choose to enroll in Summer Session, you will have to handle the financial details with Student Financial Services. This summer tuition discount credit *may* also apply to M.A. students. Please check with 107 Low to see if you qualify.

## **AWARDING DEGREES**

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Degree Conferrals for the Environmental Policy Certificate (EPC), M.A., and Ph.D. are held in October, February, and May. The **application deadlines** for the EPC and M.A. degrees are **August 1, November 1, and December 1**, respectively (or the next business day if these dates fall on a weekend or holiday).

## **SUBMITTING DEGREE APPLICATIONS**

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Applications must be submitted to the ADA who will forward all applications to the Registrar's office. For the Ph.D., the application procedure for dissertation defense set by the dissertation office, 107 Low, must be carefully followed. **The dissertation must be deposited by 5:00 pm on the Friday before the conferral dates.** Please work closely with the ADA to insure that your paperwork is processed correctly. **Submit all applications and forms to the ADA, not to the Registrar or to the Dissertation Office.**

## **M.A. & M.PHIL DEGREES FOR PH.D. STUDENTS**

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Ph.D. students are eligible for the sequential M.A. degree after successful completion of 2 semesters of coursework, with the recommendation of the DGS. Ph.D. students are eligible for the M. Phil. after completion of all the requirements, including the advanced written exams, literature review, and oral defense of the research proposal. Forms must be processed by the department to notify the graduate school to confer the M. Phil. These forms are part of the package of materials that the committee receives after a student defends the dissertation proposal and are forwarded to GSAS by the ADA. Ph.D. students may participate in the May Commencement if they have successfully defended their dissertation. Please obtain information packets on degree conferrals in the E3B office. Forms are to be filled out and returned to the ADA.

## **GRADUATE STUDENT MEETINGS**

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The Chair of E3B, the DGS, and the MAPA are available to meet with graduate students as issues arise and will schedule periodic meetings.

## **E3B GRADUATE STUDENT COUNCIL**

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The E3B Graduate Student Council was created to make the Student Meetings more frequent and productive. The 5-member council represents the students at the meetings. However, all students are welcome to participate. Elections for membership are held at the beginning of each academic year. An updated list of GSC members will be posted when available.

## **STUDENT-FACULTY REPRESENTATIVE**

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Graduate students may elect a representative to attend E3B faculty meetings. This gives students the opportunity to be aware of decisions, issues, and opportunities discussed during faculty meetings. The representative is there as an observer, not to raise issues. If students wish to bring up issues, they should do so at student meetings. The student representative is welcome during any part of the Faculty Meeting during which general issues are discussed. The student representative will be asked to leave for any part of the meeting during which confidential items are discussed, including the progress of individual students and financial matters.

### **GRADUATE STUDENT ADVISORY COUNCIL (GSAC)**

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The Graduate Student Advisory Council (GSAC) is a student government organization at Columbia University. Membership consists of student-elected departmental representatives from the 61 PhD and 26 MA programs of the Graduate School of Arts and Sciences. GSAC has two critical roles. First, they facilitate communication between graduate students and administrators. Second, they sponsor social, cultural, and academic events, as well as workshops to improve the quality of life for graduate students. GSAC's events offer students from different departments the chance to socialize and learn from each other. A GSAC Rep from E3B is to be elected every year in May. Candidates can be re-elected. Students should notify the ADA of the election results, so that the name can be reported to GSAS. Keep in mind that this person is not only representing you, but E3B as well. GSAC will show funding priority for departmental events and student group initiatives to those Ph.D. programs with active GSAC representatives.

### **CONTACT PERSONS AT E3B**

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Students may consult with any E3B faculty member for advice. However, certain faculty and departmental staff members have positions clearly designed to help students with certain issues.

#### **Director of Graduate Studies (DGS)**

The DGS oversees the progress of all students through the graduate programs. S/he keeps records on student progress, processes special requests (e.g. registration for independent study, committee membership), and provides advice on all academic matters. Your advisor may also provide such advice, but sometimes it is useful to have another person to talk to. You should go to the DGS for any academic matters concerning your studentship. Academic matters concern courses, degree requirements, and research plans, and are to be distinguished from logistical or administrative matters. We expect you to be in regular contact with the DGS: be proactive, drop in and let us know how things are going!

#### **MA Program Advisor (MAPA)**

The MAPA works with the DGS to oversee the progress of MA students. For MA students, the MAPA is the first point of contact, but s/he may consult with the DGS when matters arise that relate to general policy issues. MA students should contact the MAPA for all academic matters, which concern things like courses, degree requirements and research plans (and as such are distinguished from logistical or administrative matters). If you are an MA student, you should be in regular contact with the MAPA, even when all is going well.

#### **Academic Department Administrator (ADA)**

The ADA is responsible for overseeing the execution of departmental and university policies, including those related to students. S/he is the person to see for logistical or administrative matters, but not the person to ask for academic advice. Logistical issues include things like registration, stipends, grad school

forms, letters verifying status, scheduling defenses, financial issues including obtaining reimbursement for conference expenses, and disbursement of the pre-dissertation feasibility study grant. The ADA has an administrative assistant who helps with some student services at the ADA's instruction; however, your first point of contact for logistical and administrative issues should be the ADA her/himself.

### **Department Chair**

The Department Chair is responsible for general management of the department, including hiring of faculty, setting budgetary priorities, and communicating with the departmental faculty at large and the higher-level university administrators. This is the person to come see if there are general departmental issues that concern you, such as matters of overall policy or general faculty concern. The Chair is always in close communication with the DGS, MAPA, and ADA, so (depending on the nature of the issue) these individuals can also be consulted regarding such issues: chances are that they will pass them on to the Chair for action. The Chair welcomes student input in our growing department, but is generally not well placed to handle specific issues related to specific students.

## **GRADES AND SATISFACTORY PROGRESS**

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Generally, E3B considers the grade of B to be *minimally* acceptable for graduate students in non-policy courses. **If you have questions regarding grades, speak to your program advisor.** Understanding grading is the student's responsibility and students must be proactive. The earlier in the semester you understand a classes grading policy; the easier it will be to address low grades should they arise.

### **A. Incompletes**

In consultation with the instructor, students may receive a temporary grade of Incomplete if they have not completed the course requirements by the end of the semester. When Incomplete is assigned, the student and instructor should come to an understanding about deadlines for completing the work, normally sometime in the Spring semester for Fall courses, or by the end of the summer for Spring courses. The graduate school automatically turns grades of Incomplete into R-credit (no letter grade) after 12 months; this change cannot be reversed. Courses with R-credit do not count toward the point-totals required for each degree. This GSAS policy and should incite students to resolve Incompletes promptly.

You should be aware of another type of grade that can be used for unfinished work. The grade of "CP" (credit pending) can be given when a student plans in advance to continue work in a registered course beyond the semester of registration. In such a case, the student can get a temporary grade of CP until the work is completed. The grade of CP is appropriate for research type courses only; it would not apply to lecture or seminar type courses. It is also likely to apply only rarely to research courses, since usually one designs a Directed Research or Directed Readings course to fit into one semester.

### **B. Clarification of Grading System**

Grades range from A+ to F. A grades are 'excellent', B grades are 'very good', C grades are 'fair', D grades are 'poor', and F is failing.

### **C. Consequences of Poor Grades**

Failing to maintain the minimum GPA may result in a variety of consequences. Consequences range from re-taking exams, to teacher intervention. It is best to consult your teacher **immediately** if you are in danger of receiving a low grade so you might address the situation as soon as possible.

### **D. Minimum Grades**

Generally, the grade of B is considered *minimally* acceptable for graduate students. Two exceptions include: **B-** is the minimum grade for policy courses and **B+** is the minimum grade for Evolutionary Primatology Ph.D. students.

Students receiving less than a B will get credit for the course, unless they receive an F. All credits count towards your degree, but students need to maintain a 3.00 GPA each semester. Part-time student's GPA will be calculated once 12 credits are completed. Students with a GPA below 3.00 will be placed on academic probation. Students who fail to improve after one semester will be referred to faculty for further action. This may include dismissal from the program.

Students are not allowed to graduate if their GPA falls below 3.00. In some cases, students may negotiate with the instructor to complete extra work to raise their grade. However, this is in no way guaranteed. Any such work must be completed by summer semester after the course in question

## **SEMINARS**

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Every Tuesday from 4:00-5:00 p.m., during the academic year, E3B holds a seminar in the 1015/16 classroom featuring renowned scientists and graduating Ph.D. students. This series provides an opportunity for students to meet leaders in their field, gain insights into novel techniques and theories, and to witness a proper scientific lecture firsthand. Students are encouraged to meet and have lunch/dinner with the speaker. If you are interested, please contact the Research Seminar coordinator to make arrangements. Coffee and cookies are offered before the talk, and a reception with food and drink is provided afterward to stimulate conversation among students and the speaker. \*Please note that Ph.D. attendance to the seminars is required for the first 3 years. Attendance is expected when possible thereafter. M.A. students must register and attend the series every semester of the program, unless they are away in the field.

## **DIRECTED RESEARCH**

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Registering for Directed Research allows graduate students to receive academic credit for a one semester research project or internship.

### **How to register for Directed Research:**

1. Download the "Directed Reading" form from the E3B website:  
[http://www.columbia.edu/cu/e3b/resources\\_forms.html](http://www.columbia.edu/cu/e3b/resources_forms.html).
2. Fill out form.
3. Ask DGS (Ph.D. students) or MAPA (M.A. students) to sign form and approve amount of credits.
4. Submit signed form to the ADA.
5. Register for correct section as instructed by the ADA.
6. Register for the course officially through the Registrar.

Directed Research forms should be submitted to the ADA two days before the end of the 'add/drop' period at the beginning of the semester.

To ensure submission of a grade for biology-internship Directed Research:

During finals week, Directed Research supervisors should submit Grades via web or, to the DGS or MAPA. An e-mail is sufficient. Please ensure that your research supervisor knows this, and please take responsibility for reminding him/her of the date by which the grade needs to reach the correct person. If the grade is NOT submitted on time, you will receive a grade of CP that will have to be removed by the submission of the grade.

### **How to register for Directed Research for your policy internship:**

1. Download the “Directed Reading” form from the E3B website:  
[http://www.columbia.edu/cu/e3b/resources\\_forms.html](http://www.columbia.edu/cu/e3b/resources_forms.html).
2. Fill out form.
3. Ask your internship supervisor and Steve Cohen to approve form and amount of credits.
4. Register for the section set up by the ADA for 3 points
5. Submit signed form to the ADA.
6. Register for correct section as instructed by the ADA.

### **To ensure submission of a grade for policy-internship Directed Research:**

At the end of the semester, Environmental Policy research supervisors are to submit grades to Steve Cohen. Please ensure that your directed research supervisor has the necessary form, and please take responsibility for reminding him/her of the deadline.

**NOTE:** Questions about registration and grades should be directed to the ADA.

### **Directed Reading**

Registration for Directed Reading (G9509) gives students the opportunity to delve into a specific topic one-on-one with a professor. The professor generally structures the course with the student’s input. To register for Directed Reading, you must **submit the form to the ADA two days before the end of the add/drop period**. If the forms are not submitted on time, you will not be able to register. Forms can be filled-out and submitted in advance. It may be necessary to think ahead if people whose signatures you’ll need will be out of town during the add/drop period. Registration directly with the registrar is also required. The student registered for Directed Readings must take the initiative to *remind the professor* at the end of the semester to submit the grade. If no grade is submitted, the student will receive a CP. The professor submits a letter grade via web grading or to the DGS or MAPA at the end of the semester, as well as a copy of the student’s report on the readings.

## **GRANT PROPOSALS**

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University policy states that graduate students must submit their research grant proposals through Columbia’s Office of Sponsored Projects Administration (SPA). SPA’s review ensures that research by University scholars is appropriately reviewed by institutional review boards (e.g. Animal Subjects Review Committee, see below). In addition, submission of grant proposals through SPA relieves individual scholars of the tax liability that would accrue if grants were given to individuals, rather than the institution.

SPA uses **Rascal**, Columbia’s Administration System, which can be accessed online at <http://www.rascal.columbia.edu/>. Rascal is home to several services, including **Prop Trak**, an electronic proposal summary program containing administrative data required by SPA. It culminates with approval by a Principal Investigator (PI). The PI is required to answer conflict of interest questions pertinent to his/her specific research as well as to provide other information about the proposal. In most cases, a student’s advisor is the PI on his/her grant proposals and students are co-PI’s.

If you are working with vertebrate animals you will need approval of an animal protocol by the Animal Subject Review Committee (this is critically important –you need this even if you are not seeking funding). The Rascal homepage will direct you to Compliance and Animal Care Protocols.

Since departments are charged for indirect costs (IC) on grants that do not have this item built into the budget, you should make every effort to have the granting agency include IC whenever possible.

**The ADA must receive a copy of all grant proposals submitted to SPA.** Our SPA contact is Alex Samsky; email: [as2735@columbia.edu](mailto:as2735@columbia.edu) , phone number: 212-854-6866. SPA is located at 254 Engineering Terrace.

## **VERTEBRATE RESEARCH**

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Columbia students working with vertebrates, even if they do so completely non-invasively, are responsible for getting IACUC approval if needed. The following three conditions specify all possible scenarios.

(1) If a project meets EITHER of the following conditions, it must have Columbia IACUC approval: (A) the work is done on Columbia campus or involves animals kept on campus or (B) the work is funded (even partially) by a grant or gift that runs through the university.

(2) If the sole funding for a project runs through a non-Columbia institution, then IACUC approval issues are all handled by that institution. In this case students must consult with the other institution.

(3) Any project that does not meet either of the above two conditions (1 or 2) may need a Columbia IACUC approval. (Note that this scenario would include any unfunded projects.) In this case, the student is advised to contact the IACUC and enquire as to whether a protocol is required. There is no easy black-and-white rule to apply here, and students/faculty should not make assumptions about what is or isn't needed.

## **COPYRIGHT**

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E3B students have asked about how to interpret copyright legislation, especially as regards to images in PowerPoint presentations. These could be presentations for an assignment or as part of TA duties. The Columbia Teaching Center plans to add information on this topic to its website. Meanwhile, these references may be helpful:

CUIT (Columbia University Information Technology) has a web page on Copyright Policy, which includes a link to a "crash course in copyright" from the University of Texas:

<http://www.columbia.edu/cu/policy/copyright-info.html>.

The University of Texas site is very user-friendly and goes into a lot of detail. See

<http://www.utsystem.edu/ogc/intellectualproperty/cprtindx.htm>.

The Columbia's Libraries page also has links to some Guidelines: see

<http://www.columbia.edu/cu/lweb/indiv/bmc/guides/copyright.html>

## Masters of Arts in Conservation Biology

(See also 'General Academic Information' and the GSAS Bulletin)

The Master of Arts in Conservation Biology focuses on biological sciences and integrates environmental policy and economics concepts. The interdisciplinary approach provides students with a range of options for building their careers. Graduates may continue their education in a Ph.D. program or enter the job market directly as scientific researchers, teachers or administrators in a NGO or government agency dedicated to the conservation of natural resources. Students have the option of tailoring their course work to follow one of **three tracks** and can customize their studies by choosing between a **thesis-based** and a **course-based** program.

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### OVERVIEW OF THE 3 TRACKS

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Students have the option of tailoring their course work to follow an academic, a professional or an educational track.

The **academic track** focuses on research and emphasizes the scientific aspects of conservation biology and is designed for students who plan to pursue a Ph.D. in the future; the

The **professional track** focuses on applied conservation and emphasizes the policy aspects of conservation biology and for students who plan to enter the conservation profession immediately after obtaining the M.A. degree, or who are already working in this area.

The **educational track** focuses on engaging the broader public on conservation biology issues and is designed for students who plan to enter the education field (e.g., teaching conservation in k-12 schools) or communication (e.g., exhibits and displays at museums, zoos, botanical gardens aquaria, and parks). The requirements of the three tracks differ, as explained below.

\***Note** that transcripts do not distinguish among the tracks—they only show you are enrolled in an MA program and list the courses you have taken. It is possible to simultaneously complete two tracks (e.g., Academic and Professional), but this would not show on transcripts or diplomas. If students require special documentation about which track has (or tracks have) been completed, the MAPA can prepare a letter with appropriate documentation.

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### COURSE-BASED vs. THESIS-BASED OPTIONS

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Besides choosing one of the three tracks, students have the option of following a course-based or a thesis-based program.

#### **A. Thesis-based program**

Students aiming for the Thesis-based program must develop a research proposal during the first semester of their first year. The research proposal is the final output of a mandatory course (Thesis development seminar) that all students aiming for the thesis-based program must take in the first semester of their first year. At the end of the semester, the research proposal will be submitted to the potential advisor for approval, only once the research proposal is approved a student is allowed to continue in the thesis-based program.

Students following the **Thesis-based program** will spend a considerable portion of their registered time working on a research project that leads to a final thesis. Research work for the thesis is generally carried out within the context of ongoing research activities of the E3B Department or the CERC partner institutions.

Students are also welcome to discuss with the MAPA research options outside the Department and the CERC consortium. 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.

Field work and data collection for the thesis is generally carried out and completed during the summer between the first and the second year of the M.A. program. Students can apply to the MAPA to request that the field work and data collection period be extended into one of the two semesters of the second year (*research semester*). Requests for a research semester must be submitted to the MAPA by the end of the summer semester between the first and the second year and need to be clearly motivated and in line with the research plan. Students will receive up to 12 credits for their field work, data collection and research activity; actual number of credits will depend on the overall work load.

To complete their course requirements, students in the thesis-based program submit a thesis to their committee members. The committee will evaluate the thesis and will clear the student for graduation upon satisfactory result.

**Students in the thesis based program are expected to complete 49 credits to graduate.**

### **B. Course-based program**

Students on the **Course-based program** are not required to complete a research-based M.A. thesis, and therefore no summer work between the first and second years is required. Students in the course-based option must register for two additional classes, either in conservation science or environmental policy, beyond those required for the thesis-based M.A. Students in the course-based option will likely not register for a large number of units of Directed Research but could still register for some Directed Research to undertake internships or gain research experience. As a leaving-requirement students in the course-based program write a take-home essay over a period of 2 weeks during the Spring semester of their 2<sup>nd</sup> year. An *ad hoc* committee of 2-3 faculty members, rotating from year to year, sets a choice of topics, and then reads the ~20 page papers, and grades them on a pass-fail basis. The essay tests the students' ability to think about aspects of conservation biology in a critical and informed way.

**Students in the course based program are expected to complete 47 credits to graduate.**

### **ADVISORS AND COMMITTEES**

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Students in the thesis-based M.A. program need to find a research advisor, and to set up a committee as follows:

- Advisors must be selected in the first semester of study. Advisors need to be E3B/CERC faculty members. If you are uncertain of a faculty member's status, check with the ADA, DGS, or the MAPA.
- A committee with 3 members (including advisor) must be formed before seriously planning for research. At least 2 members must be affiliated with CERC. You must have one core CU/E3B faculty member on your committee, unless otherwise approved by the E3B chair and MAPA.

### Examples of Committee Composition:

1. CERC [CU GSAS]  
CERC [non-CU GSAS]  
non-CERC
2. CERC [CU GSAS]  
CERC [non-CU GSAS] CERC [non-CU GSAS]
3. CERC [non-CU GSAS; approved by E3B Chair, DGS and MAPA]  
CERC [non-CU GSAS]  
non-CERC

### M.A. COURSE REQUIREMENTS

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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.)
- **47 or 49 credits**, depending on the type of program (*thesis-based* or *course-based*) chosen
- A balance of electives based on the track chosen (see track-specific requirements below).

All students must complete the following *Core Courses* regardless of the track chosen and the type of program they are following:

- 1) **Fundamentals of Ecology and Evolution** (EEEEB 4122), 4 credits (with option to place out<sup>1</sup>)
- 2) Two semesters of **Conservation Biology** (EEEEB G6905 and EEEB G6990), 3 credits each.
- 3) **Environmental Politics, Policy and Management**, (SIPA U6241), 3 credits.
- 4) Four Semesters of **Research Seminar** (EEEEB G6300), 1 credit per semester. Students are exonerated for one of the four semesters if they spend a semester in the field (*Research Semester*)

Core courses account for **17 credits**. Core course credits are reduced to **16** when taking a *Research Semester*, **13** when opting out of the Fundamentals of Ecology and Evolution (EEEEB 4122), and **12** when taking a *Research Semester* while at the same time opting out of the Fundamentals of Ecology and Evolution (EEEEB 4122).

Students aiming for the Thesis-based program will also take the Thesis development seminar (EEEEB G4850) for 3 credits.

To fulfill the program requirements, students must complete the required credit (47 or 49 depending on the program chosen) with a combination of elective courses, directed readings and directed research.

Please note that elective courses, directed readings and directed research fall within one of the following categories:

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<sup>1</sup> A student can petition to place out of this requirement. The petition is evaluated by the student's advisor, the MAPA, and the Chair and if significantly advanced training in ecology and evolution can be demonstrated, this requirement will be waived. Students that are granted the waiver will still need to make up for the 4 credits by taking additional elective courses.

1. Conservation science
2. Environmental policy
3. Education and communication

While the M.A. in Conservation Biology provides for extra flexibility in tailoring the lineup of courses which is most appropriate for the student's interests, the following guidelines apply, based on the track chosen.

### **ACADEMIC TRACK**

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There are no additional required courses for the Academic track, but students need to take at least:

- 3 electives in Conservation science
- 2 electives in Environmental policy

Students can choose to substitute one of the electives in Conservation science with a directed reading or a directed research. Students **cannot** substitute any of the required electives in Environmental Policy with either a directed research or a directed reading.

Considering an average of 3 credits per course, the 3 electives in Conservation Science and the 2 electives in Environmental policy will account for about **15 credits**.

To make up for the total credits required for graduation, the student is free to select any additional course, directed reading and/or directed research, after discussing the matter with the MAPA.

### **PROFESSIONAL TRACK**

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Students following the Professional track are required to take the following amount of science and policy electives:

- 3 electives in Conservation science
- 3 electives in Environmental policy.

One elective per category (Conservation science and Environmental policy) can be substituted with a directed reading or a directed research.

Considering an average of 3 credits per course, the 3 electives in Conservation Science and the 3 electives in Environmental policy will account for circa **18 credits**.

To make up for the total credits required for graduation, the student is free to select any additional course, directed reading and/or directed research, after discussing the matter with the MAPA.

### **EDUCATION TRACK**

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Students in the Educational track are required to take *Teaching Conservation Biology (EEEE 4800)* as one of their electives; plus they will need to sign up for at least:

- 2 electives in Conservation science
- 2 electives in Education and communication
- 1 elective in Environmental policy.

One elective per category (Conservation science, Education and communication and Environmental policy) can be substituted with a directed reading or a directed research.

Students in the Educational track are encouraged to have a *hands on* experience by taking advantage of training internships with one (or more) of our partner institutions; these include:

1. CERC's Middle School 88 project
2. AMNH Network of Conservation Educators and Practitioners
3. WCS Exhibits, Graphics and Design Department
4. WCS Educational Department
5. AMNH Exhibition or Education departments
6. New York Botanical Garden Displays Department

You can discuss further internship options with the MAPA. Students on an internship will register for directed reading or directed research to obtain credits towards their requirements. The number of credits will depend on the workload that the internship requires.

Considering an average of 3 credits per course, Teaching Conservation Biology (EEEEB 4800), the 3 electives in Conservation Science and the 2 electives in Environmental policy will account for circa **18 credits**.

To make up for the total credits required for graduation, the student is free to select any additional course, directed reading and/or directed research, after discussing the matter with the MAPA.

**Students in all tracks enrolled in the course-based degree program add 2 more electives: these 2 electives can be in either conservation science or environmental policy (or in education and communication for students in the educational track).**

## **ELECTIVES OVERVIEW**

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The list on the following page provides examples of the courses that may be used to fulfill the elective requirements; but other courses may also be available and eligible for the M.A. program. Please note also that not all courses are offered every year.

**If you would like more information about elective courses please contact the MAPA.**

## **LIST OF ELECTIVES**

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### **Conservation Science:**

Forest Ecology  
Disease Ecology and Conservation  
Restoration and Urban Ecology  
Race: Tangled Historical-Biological Concept  
Evolution I  
Introduction to Conservation Genetics  
Teaching Conservation Biology  
Fundamentals of GIS in Ecology and Conservation

Managing and adapting climate  
Global Assessment and Monitoring Using Remote Sensing  
Environmental data analysis and modeling

### **Environmental Policy:**

Economics of the Environment  
Environmental Science for Sustainable Development  
The Geopolitics of Energy  
Alternative Energy Resources  
The Economics of Energy  
History of American Ecology & Environmentalism  
Quantitative Methods-Energy/Policy Analysis  
Urban Energy Systems & Policy  
Law, Economics and Development  
Environmental Science for Sustainable Development  
Human Ecology and Sustainable Development  
Community Development Policy  
Environment, Conflict and Resolution Strategies

### **Education and Communication:**

Science in secondary school  
Science in childhood education  
Science in the environment  
Structure of science knowledge and curriculum design  
Middle School Living Environment Methods Laboratory  
Introduction to science education practice  
Neurobiology of consciousness, constructivism, and information processing  
Science curriculum improvement in the elementary school  
The nature and practice of science  
Science, Technology & Society  
Selected topics and issues in science education  
Science teacher education  
Curriculum and pedagogy in science education

## **CHOOSING TRACKS AND PROGRAMS**

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In principle, the three tracks and the thesis vs. course based program are independent dimensions of the master's program, and any of 6 combinations is possible. However, we generally advise students interested in pursuing a Ph.D. (i.e. those in the academic track) to undertake a serious research project (i.e. a thesis). **Students must elect which of each of the two sets of MA degree options they wish to pursue by the end of the Spring semester of their first year.** After this point, it will not be possible to change from one track or option to the other. Please notify the MA Program Advisor and ADA of your choice.

## **SCHEDULING FIELD WORK FOR THESIS-BASED PROGRAM**

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Fieldwork is generally carried out during the summer semester between year 1 and year 2. Students will get up to 12 credits for their fieldwork by registering for directed research in the following Fall semester. The faculty recognizes that it is sometimes difficult for students to complete all of their field research for the MA thesis in just one summer. Therefore, thesis-based MA students may request a *Research*

*semester*, which allows them to spend one of their four semesters in the field conducting research, in addition to the summer period.

Whether it is wise for a student to extend fieldwork in this manner is a decision to be taken carefully in consultation with the student's entire committee and the MAPA. A careful review of any outstanding core requirement will be performed before authorizing a student to take a *Research semester*. Students who spend one semester in the field will not be expected to register for the Research Seminar during that semester.

## **READING ASSISTANTSHIP**

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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. 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 ADA 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**

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MA students in any track in both the thesis-based and course-based MA programs may, pending consultation with and approval of the MAPA, use internships as substitutions for elective coursework. Registration for Directed Research ensures that credit will be given for the work.

## **DIRECTED READINGS - SUBSTITUTE FOR REQUIRED ELECTIVE COURSES**

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There is a limited number of required courses in the biology and policy categories that can be satisfied through Directed Readings: that limit is 1 course in each category, unless otherwise stated in the track-specific requirements. Students must secure approval of such a substitution in advance, using the Directed Readings form. Such substitutions will be approved only if it can be demonstrated that Directed Readings provides a learning experience that is not available in course format.

**Directed Readings used for thesis work are not acceptable as a substitute for an elective course.**

## **M.A. THESIS**

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**\*for thesis-based M.A. program**

The M.A. thesis is traditionally shorter than the Ph.D. dissertation, but should still be of publishable quality. The general requirements for formatting are the same as those of the Ph.D. dissertation, which are posted online at: <http://www.columbia.edu/cu/gsas/sub/dissertation/guidelines/formatting/index.html>

Most theses follow a journal manuscript format; that is, they include an introduction, materials and methods, results, discussion and conclusion sections. Students should work with their committee to develop the formatting expectations for their thesis well in advance of its submission for final reading.

***The thesis is due for deposit in the department on the Wednesday before Commencement.***

In April students in the Thesis-based program receive a form which needs to be signed by their advisor and committee members to approve the thesis and recommend the student for degree conferral. This form is due the Wednesday before Commencement. It is the student's responsibility to obtain the signatures

from all the committee members. If a member will be out of the country, please make appropriate arrangements in advance, and note that in such a case, a faxed signature will likely be acceptable (confirm with the ADA in advance however).

Students should agree with their committee to a timeline and to milestones for the submission of thesis revisions. All students must submit a final copy of their thesis to their committee at least two weeks prior to its May due date. This will give committee members the two weeks that they are entitled to have for review of the final version of the thesis, which must incorporate their suggestions from previous drafts.

**Writing a thesis may take longer than you think!** Students make several revisions and have several committee meetings or meetings with individual committee members before producing the polished final version submitted to the committee 2 weeks before Commencement. Considering each of these revision cycles may take 2-3 weeks, work a schedule backward from the pre-Commencement deadline for deposit of the final version in the department. **As a general rule plan to submit a working final draft to your committee by mid-March.**

Students cannot assume committee members will be able to review a final draft in less than two weeks; as readers, they must have 14 days. However, if *all* the committee members are willing to take less time than 14 days, the students may be entitled to a little extra time. Please note that agreeing to take less time for reading is an extreme sign of courtesy. Faculty members are very busy at the end of the term, and they may not be able to be so flexible (nor are they in any way expected to be).

**Students who do not submit their thesis in a timely manner will not be cleared for graduation, and their graduation will be postponed to October. Students whose graduation is postponed may need to pay additional tuition.**

Students will need to submit a bound hard copy and an electronic version of their thesis to the E3B ADA by the Wednesday before Commencement. Black thesis/dissertation binders are available from the Columbia bookstore. Electronic submission is preferably done on a CD as theses may eventually be put on the E3B website for public access. Students must turn in the signed approval form along with the final bound and e-versions of the thesis, all at one time, on the Wednesday before Commencement to the ADA. (The ADA will provide the specific date for submission of the thesis to the department by the beginning of April.)

## **PROGRESS REPORTS**

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At least once a semester it is good practice to schedule a meeting with the MAPA to evaluate progress and discuss future options. The meetings are informal, but will help students keep on track with their studies.

During the meeting the MAPA will update the student's records on his/her coursework, committee members, research planning and progress, etc. This information allows the faculty to assess a student's progress at regular intervals, and to intervene for both the students' and the graduate programs' benefit when conflicts or problems arise.

## **TRAVEL TO MEETINGS**

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Pending the availability of funds (see Appendix 2 for an update), M.A. students can receive up to \$300 from the department in support of travel to a scientific meeting (approved by the MAPA) any time during their 2-year studentship. 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!). The student must be enrolled in the MA program in order to be eligible for reimbursement.

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:

- i. provide documentation that you actually attended the conference (e.g. a registration receipt).
- ii. submit your Travel Business Expense reports within 2 weeks of arriving back to the USA.
- iii. fill out your forms online from the Controller's website at:  
<http://www.columbia.edu/cu/controller/> under 'forms and tables'.
- iv. 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.
- v. 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 ADA or 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.

## PH.D. IN ECOLOGY AND EVOLUTIONARY BIOLOGY

**\*Important Note:** The E3B faculty recently voted to change the Ph.D. requirements. Below are the requirements for students accepted to the Ph.D. program prior to 2009. Please skip to page 51 for the Ph.D. requirements for students admitted in 2009 or later.

### I. General Requirements

The Ph.D. program is designed as a five or six-year program, one year of which can be devoted to completing a linked but separate degree, the Environmental Policy Certificate. **Forty total science credits** are required to complete the program, with the exception of students entering with “advanced standing” status. Requirements for the Certificate are detailed in the section “Environmental Policy Certificate.” The requirements for the EEB Ph.D. include:

- 2 core courses
- elective courses
- 1-2 biology internships\*
- 2-4 semesters as a teaching assistant
- 2 advanced exams
- a literature review
- an oral proposal defense
- a dissertation (which is also orally defended)
- a public presentation of the dissertation.

*\* depending on your advanced standing status – i.e. the number of semesters credited or previous graduate work*

### II. Committees

Students complete the Ph.D. program under the guidance of two of committees whose membership usually overlaps substantially, if not completely.

#### **A. Three-Member Advisory Committee**

Entering Ph.D. students will have a principal mentor/advisor with whom they will develop a 3-member advisory committee during the first year of study. The committee will give advice related to course and internship selection, the scheduling of early degree requirements, and early research plans. Typically members of this committee become readers of the student’s advanced exams and literature review, and then become part of the dissertation committee.

#### **B. Five-Member Dissertation Committee**

The dissertation committee consists of exactly 5 members (see below for details on committee constitution), and must be selected before the student begins serious research. The committee’s role is to guide the student in developing a research project, to evaluate the research proposal collectively during the oral proposal defense, and to evaluate the finished dissertation collectively during an oral dissertation defense.

All five members of the dissertation committee MUST be physically present for the formal dissertation defense. This is a GSAS rule and important for advisors to emphasize when they are contacting potential committee members.

The 5 members of the Ph.D. dissertation committee include the advisor/sponsor, and a mixture of ‘inside’ (i.e. E3B-GSAS) and ‘outside’ committee members, as follows:

- 1) 1<sup>st</sup> E3B-GSAS Reader - Advisor/Sponsor
- 2) 2<sup>nd</sup> E3B-GSAS Reader - Chair of the Committee (tenured CU/E3B)
- 3) 3<sup>rd</sup> E3B-GSAS Reader
- 4) 1<sup>st</sup> Outside Reader
- 5) 2<sup>nd</sup> Outside Reader

#### **Defining terms of an “inside” and “outside” reviewer:**

**An E3B-GSAS (‘inside’) reviewer** is a faculty member listed under E3B-GSAS. See the GSAS Bulletin. (Note: this list is printed every 2 years, and may be outdated – check with ADA for recent changes). This list includes Columbia and Barnard faculty and some researchers from non-Columbia institutions (including AMNH, WCS, NYBG & WT) who serve as adjunct faculty to Columbia.

**Anyone else is considered an ‘outside reader.’** Usually dissertation committees consist of 3 E3B-GSAS reviewers and 2 outsiders. However, it may be possible to include more E3B-GSAS faculty from the GSAS Bulletin list, under special circumstances. All dissertation committees must include at least one member of E3B's core faculty as one of the ‘insiders.’ In general, the committee should not include more than 3 members from any one non-Columbia institution.

In any case, committee composition must be approved by the E3B Chair and the DGS for appropriateness and adherence to GSAS guidelines. Outside members who are not on the GSAS list may be asked to submit a CV. Final approval of the members of a dissertation defense committee rests with the Dean of the Faculty of the GSAS.

#### **C. University Guidelines for Devising Committee**

**The advisor, not the student, extends the invitation to faculty to serve on a committee.** The advisor may discuss committee membership with the student in advance, but students are not to set up their own committees (this is a GSAS rule). The advisor also chooses the Chair of the Committee, whose job is to preside at the proposal and thesis defenses. The Chair should be a CU/E3B tenured faculty member who is not the student’s advisor (this is a university rule). An advisor may, with compelling reason, petition the Department Chair to allow a Dissertation Committee Chair who is either untenured or non-CU/E3B. These procedures follow Columbia’s Ph.D. dissertation guidelines, which state, *“the responsibility for selecting and recommending defense committee members rests with the Dissertation Sponsor, Department Chair, and the DGS. Students may not select their own defense committees....”*

Keep in mind that time is required to nominate and have the committee approved by GSAS. If you propose a committee that differs greatly from the guidelines, please speak to your advisor as soon as possible. Your advisor can then consult with the Chair of E3B and the DGS.

#### **D. Meeting with Your Committee**

You should meet at minimum once per year with your committees and it is the responsibility of the advisor to report to the DGS on progress. It is important to have the 5-member committee in place before

the proposal defense: this allows all members of the dissertation committee to become involved in the student's research at an early stage when they can be most helpful. Faculty members may be reluctant to join dissertation committees at the last minute, since they are likely then to have relatively little input.

### **E. Changing Committee Members**

However, it is sometimes necessary to change committee members between the proposal and dissertation defenses due to changes in faculty availability or research emphasis. Should this occur, it is important that the DGS be consulted as early as possible so that s/he can work with the student and committee to make whatever adjustments are needed as soon as possible. Again, while students will clearly consult with their mentors regarding potential changes, it is the role of the mentor to discuss these changes directly with individuals coming off or going on the committee. Any changes in committee membership must be formally approved by the department chair and DGS.

GSAS rules require that students carry out their proposal defense with at least 3 members of the dissertation committee present, including the sponsor; these three must be GSAS members, listed as such in the GSAS handbook. E3B requires that any committee member not present sign off on the proposal defense. Their approval can be noted by signing the defense proposal form or by contacting the ADA and thereby granting their approval via email. Please note that the application for the M.Phil. degree will not be submitted by the ADA to the Dissertation Office until all committee members have given their approval of the proposal defense.

**Each Ph.D. student must obtain the information package "Ph.D. Dissertation: Research proposal, sponsorship, defense and deposit" from the administrative assistant.** This package contains important information and forms. Detailed regulations and policies of the Ph.D. Dissertation details from GSAS are described here. Relevant information can also be found in the GSAS Bulletin: <http://www.columbia.edu/cu/gsas/dissertationoffice.html>. Do not submit any forms directly to the dissertation office. Please remember all forms must be submitted to the ADA.

### **III. Funding: general model**

Students are expected to secure funding from an external source for their unfunded year. Such funding may come from grants made to the student or to his/her advisor. Please note some funding sources do not qualify as "external" and are not acceptable. For example, a university-derived fellowship is not considered external funding. Always check with the ADA to be certain of the applicability of funds you wish to apply to your externally funded year.

Students who obtain an additional year of funding in advance of their final year should consult with the DGS, ADA, and their advisor concerning effective distribution of resources. Funding must cover research costs as well as stipend. The department makes every effort to cover the Matriculation and Fees (M&F) charges for students during their externally funded year. Students who deviate from the schedule of completion of various degree 'milestones' (see below) may find themselves in a disadvantageous position with respect to funding.

It is the responsibility of the student and their committee to ensure the timely completion of a Ph.D. in the absence of an externally funded year. If a student has not secured funds for his or her externally funded year at the end of their third year for most students or end of their second year for students with advanced standing, their committee is to devise a Ph.D. timeline with benchmarks that ensures the student finishes without an additional year. Should a student secure external funds past their third year, the timeline and benchmarks can be adjusted.

## **Financial deadlines**

(1) **The first deadline** falls at the end of the 4<sup>th</sup> year for students without advanced standing (and at the end the 3<sup>rd</sup> year for those with advanced standing). This is the deadline for completion of all requirements for the M. Phil. and EPC certification (including all courses, internships, advanced exam, lit review, proposal defense & at least two TA-ships).

(2) **The second deadline** falls after the student's last internally, E3B-funded semester. Students are given until the first date of the new semester to meet with their committee and discuss external funding.

## **Consequences**

If you miss the first deadline, you will need to pay the difference between M&F and Extended Registration (ER) tuition until your requirements have been completed. If you miss deadline 2, you will have to pay M&F for the semester(s) after your last funded semester.

## **Reminders**

E3B has found many students tend to complete their general requirement milestones towards the end of Spring semester. To avoid missing completions of a milestone remember:

- You must be officially enrolled during the semesters you decide to take your 2 core courses.
- Your dissertation must be distributed to each committee member before the 1st day of the subsequent semester (summer session included). If that has occurred, no additional M&F will be charged even if the defense does not occur until sometime during the new semester.

\*The key is you must be registered during the semester you distribute your dissertation.\* If you are unsure about your particular situation, see the ADA for clarification.

## **IV. Courses**

### **A. Core Courses**

Core courses prepare students to work as professionals in their field by bringing them to a similar advanced level, and introducing them to the latest developments in the field. Core courses are not 'special topics' courses covering only the latest developments, to the exclusion of a background body of knowledge. The format of core courses includes:

- (i) background reading (textbooks) for students who need to catch up, even if the main readings come from the literature;
- (ii) formal and objective evaluations that occur throughout the semester; and
- (iii) substantial lecture time and student participation/discussion.

All first-year Ph.D. students are required to take 2 core courses in the first year:

1. **Fundamentals of Ecology and Evolution** (EEEE 4122)
2. **Graduate Seminar in Conservation Biology** (EEEE 6905) or **Topics in Conservation Biology** (EEEE G6990)

Ph.D. students are also strongly urged to take **Evolution** (EEEE 6110) and in some cases, a student's adviser or committee may require this course.

In addition to the above core courses, all students must take the **Research Seminar** (EEEE G6300) for the first 4 years (3 years for those with advanced standing), and attendance is expected thereafter whenever a student is in residence in New York City. Note that this course consists of two parts – the first consists of graduate student research presentations while the second consists of research from faculty, postdoctoral fellows, Ph.D. students who have defended, and visiting scholars.

### **Grading**

Students receiving a grade of less than B in core courses are required to take a written exam at the end of the first summer based on assigned readings, and must pass this exam to claim successful completion of the core course requirement. (Please see pages 21-22 for details on grading procedures.)

### **B. Electives (Biology)**

*We refer here to elective courses in biology. EPC elective courses are discussed later under (“Environmental Policy Certificate”).* Students without advanced standing are required to take a total of 40 science credits, which include core courses, the E3B Research Seminar, directed research and readings and elective courses. Those with advanced standing are required to take a total of 20 science credits.

Elective courses provide specialized training in one or more of the areas of program specialization: evolution, ecology, population biology, systematics, ethnoscience, and behavior. Courses taken to fulfill foreign language requirements are not considered “science” credits. Generally we recommend students take 5-6 electives total (3-4 for students with advanced standing). Students’ mentors and committees should advise on the number and content of elective courses; the DGS may also be consulted.

Keep in mind that courses at other selected universities in the area, those that are part of the inter-university doctoral consortium (CUNY, NYU, Stony Brook, Princeton, AMNH etc.), can be used as electives. You will need to consult those universities’ websites for information on current course offerings, and complete the appropriate paperwork (available from GSAS, not the department). Students generally fulfill additional credits with directed readings and research courses. They give the student the freedom to design their own course of study, within their supervisor’s guidelines. To that end, students and supervisors should discuss expectations about the amount of time devoted to the directed studies, the frequency of meetings, and what they anticipate resulting products to be, and then summarize this information in the directed studies form. The form has to be signed by the supervisor and DGS. Generally, students are expected to devote 3-4 hours of directed studies per week for one credit, so for example a student would spend about 10-12 hours per week on a three-credit course

## **V. Internships**

### **A. Biology Internships**

Ph.D. students are required to complete 2 biology internships, neither of which can be with the student’s advisor, and each in different areas. Sponsors should be from different institutions. To obtain academic credit for internships, students must register for them as ‘directed research’ (see General Academic Information). The DGS must approve the two internships.

Students with advanced standing should confer with their adviser, the DGS, and the Chair to determine if their experience may suffice to waive one of the two required internships. For example, a student with an M.A. or M.S. in ecology, evolution, or environmental biology from another institution may be able to demonstrate that they have had training in research methods through participation in research projects with faculty at another university.

The purpose of the biology internship program is to train students in research methods through participation in specific faculty research projects, or through collaboration with faculty on new projects. Internships are expected to produce students with practical research experience. In addition to collecting data, students are trained in data analysis, and (for at least one of the internships) the production of a manuscript ready for scientific review. Internships also provide students an opportunity to generate preliminary data that can be included when submitting grant proposals. While all biology internships involve biological data in some way, some of them may include applications of those data to more applied questions or problems.

### **Summary of E3B Biology Internship Program Requirements for Ph.D. students:**

1. Internship topics and supervisors are chosen by the student in consultation with his/her Advisory Committee. The internships must be in different areas, and neither must be with the advisor. The DGS must approve the plans.
2. Internships must be supervised by an E3B/CERC faculty member who is not the student's advisor. (Note: postdoc researchers cannot serve as a sponsor.) The supervisor grades and summarizes the research project. Under compelling circumstances and with the DGS's approval (of the internship proposal and final results), an internship supervisor may be someone outside the E3B/CERC faculty, as long as a CERC/E3B faculty member takes official and serious responsibility for approving the internship proposal and overseeing its successful completion.
3. Internships must represent at least one semester's work, with 3-6 credit hrs / week.
4. Pending availability of funds (see Appendix 2 for an update, and always check with the ADA), each of the internships is eligible for up to \$500 in support to cover costs incurred by the internship supervisor for the purchase of supplies or minor equipment for the intern's use. This support is thus not paid directly to the student – see the section of this handbook called "Conference/Research Financial Assistance" for further details on how to procure this support. Any durable equipment purchased on behalf of an intern becomes the property of E3B.
5. Joint internships are OK, but separate written work and final projects are required.
6. Publications are a worthy goal, but not required.

### **B. Policy Internships**

Internships in environmental policy may be undertaken by Ph.D. students who may use them for course credit (counting as an 'elective') in the policy certificate program. Policy internships cannot be used to fulfill the biological internship requirements. If a student undertakes a biological internship with applications to policy issues, that internship cannot also be used to satisfy the policy requirement. In other words, a single internship cannot satisfy both biology and policy requirements. For more detailed information on the policy internship program, and policy internship form, see "Environmental Policy Certificate" section.

## **VI. Language Requirements**

The official policy regarding language proficiency is as follows:

Students are required to demonstrate proficiency in foreign languages as needed for their specific fieldwork locations. Proficiency is assessed by university examination or the program.

For each student, language requirements are determined by the student's committee, which consults with the Chair of E3B and the DGS as needed. Imposition of a language requirement depends on whether the student will conduct research (i.e. field work) in a location in which a foreign language is the primary means of dialogue. If an exam is taken, the results are to be recorded on the Grade Form by the examiner and submitted to the ADA.

## **VII. Teaching Assistantships**

Graduate students planning a career in academia often underestimate the importance of teaching experience needed to obtain a job offer. Job candidates for university-level positions are often judged on their potential to fill a particular teaching niche (e.g. "We need a behavioral ecologist"), their potential to teach a variety of courses (e.g. "We need a teacher in behavioral ecology, vertebrate morphology, biometry, and introductory biology"), and the quality of their teaching (judged from student evaluations, letters of reference etc.). It is rare not to be asked to include a statement on your teaching experience, objectives, style, and goals in your job application.

### **A. Teaching Assistantship Requirements**

With these demands in mind, all Ph.D. students are required to teach for 2-4 semesters. Teaching duties normally fall between the 2<sup>nd</sup> semester of the first year and the 2<sup>nd</sup> semester of the third year of study, depending on the availability of teaching opportunities. In exceptional circumstances, which include unusual student priorities and the ability of the department to accommodate the irregularity, a student may be able to postpone one semester of teaching up to and including the penultimate year in the program. Any such plan is most likely to be realized if it is discussed early on with the DGS. There is no additional monetary compensation provided to the TAs since teaching obligations are a component of all fellowships and are a requirement for the degree.

### **B. Assigning Teaching Assistantships**

The Chair and the DGS will assign teaching assistantships. Students will be asked by the ADA to submit preferences for TA-ing particular courses (during Spring semester) and efforts will be made to match the TA to the course s/he desires. However, a perfect match is not always possible.

In making TA assignments, we take into account student and faculty preferences, special skills, and previous assignments and the needs of the student's educational program and the department's instructional program. The number of TA's assigned to a course is based on anticipated enrollment, demands of the course and teaching style of the instructor. TAs and instructors will be notified of assignments at the end of the spring semester for the following academic year.

#### **Please note:**

\*You cannot TA for a course for which the department has not officially allocated a TA position.

\*You cannot enroll in a course for which you are the TA.

\*The departmental teaching guidelines provide useful information about the TA experience, and are included as an Appendix to this handbook.

## **VIII. Literature Review**

The literature review is meant to fulfill two goals. First, researching and writing the review encourages student to become familiar with literature relevant to his/her dissertation research. Second, the review often acts as the first chapter of the student's dissertation. Following are guidelines for the literature review:

1. Decide upon subject area with advisory committee. The subject area should parallel your dissertation research.
2. Select two readers (generally your advisor and a committee member). Other readers may be used if deemed to have a valuable perspective. Your committee must approve outside readers.
3. Prepare a final bibliography and write the literature review. The review should be publishable in a professional journal and should eventually form the basis of the first chapter of your dissertation. Submission of the review for publication is strongly encouraged.
4. Submit a draft to readers for comments. Revise if necessary.
5. Submit final version for a grade (fail, low pass, pass, high pass) to both readers at a mutually agreed upon time. The grades are to be reported to the ADA.
6. A copy of the Literature Review is to be submitted to the ADA on a CD, and copies should also be given to your advisor and readers if they are requested.

**Generally, the literature review takes place prior to advanced exams, as it is the most comprehensive of the requirements,** but timing and sequence is entirely up to the committee.

## **IX. Advanced Comprehensive Examinations (ACE)**

The purpose of the ACE is to test a student's ability to think like a professional in his/her field. "Thinking professionally" means being a master of information, being able to develop well-grounded critical analyses, and being able to communicate this mastery clearly to others.

Students should inform the ADA at least 2 weeks prior to the date they plan to take the exam. Examiners are to provide the exam question(s) to the ADA at least a week in advance.

- **ACEs generally occur after the literature review and always before the thesis proposal defense.**

### **A. ACE Format**

The ACE format is a 72 hour take-home open-book exam, in which the student prepares a response to a specific question in the style of a TREE (Trends in Ecology and Evolution) article. The response is limited to 15 pages (double space, 12 point font). The faculty voted for this format because they felt this exercise is similar to work a student would undertake as a professional.

The student's response should be a well-organized, well-argued essay on a question-driven topic. It should not simply be a review of the literature. The topic of the exam will be agreed upon by student and readers while the student prepares his/her bibliography. The bibliography usually encompasses 100-200 references (only some of which are usually cited in any one exam).

Exam answers are submitted electronically as an MS Word file to the ADA and to the readers suitable for a Windows based PC (which is what the office uses). Be certain to confirm that the answers were received by the ADA as attachments are notorious for not being successfully transmitting in electronic correspondence!

Note: Students should discuss the exam format with the readers! The ADA can send out a set of instructions to readers if needed, so please let him/her know if this is desirable.

### **B. Choosing the ACE Question**

The student may suggest specific exam questions; however, the readers are not obligated to use them. The exam readers should then meet and decide on a question. The readers should then communicate their exam question to the ADA, who will transmit it to the student at the start of the exam. The question on which the student will write his/her essay will not be known by the student in advance of the exam.

In setting the question, readers may provide more or less direction. Too little may result in students taking a direction in their essay that was unanticipated (and perhaps not what the readers had in mind). Too much, however, might rob the student of the opportunity to develop his/her own coherent organizational or analytical scheme, which is a critical part of the exercise. We are looking here for students to pull together a larger body of thought in an informed, critical and organized way. Students are expected to provide references, to check their document for proper spelling and formatting and to write well.

Students should consult with their advisors for specific help in formulating ACE questions.

### **C. Grading the ACE**

Readers give the exam one of the following grades: **fail**, **low pass**, **pass** and **high pass**. Low pass and high pass are relatively rare grades, meant to acknowledge particular weakness or strength. (Fortunately fail is even rarer as a grade!). Most students who pass receive a simple pass. Graders are not required to provide extensive feedback on the exams to the student. However, they are welcome to give feedback to the extent they feel comfortable. Readers may choose to communicate through the student's advisor, or directly with the student. It is up to the graders to initiate this communication. Students are encouraged to publish ACE products when appropriate.

After the exam is graded, readers transmit their grade to the ADA. They should each do this individually after consulting with each other. They need not submit the same grade if both are within the passing range. However, if one grader feels the student should fail and the other does not, the different opinions need to be resolved.

### **Practical information for ACEs:**

Bibliographies for the exams are prepared the semester before the exam is taken. Bibliographies typically include 100-200 references, and form the basis of literature for which the student is responsible. Student and readers must agree on the bibliographies. (Note that only some of the papers in the bibliography are likely to be cited in any one exam.)

### **ACE Waiver**

With approval from their advisor, students with advanced standing (and in rare cases students without advanced standing) can petition for their previously published work (including literature reviews) or their master's thesis to be substituted for the advanced exams. The student must be the first author of the work and the topic must be related to Ecology, Evolution, Environmental Biology, or Conservation Biology. The petition goes to a standing committee of three, appointed each year by the DGS and Chair. (Advisors of a student cannot serve on their student's standing committee; a substitute member will be found.) The committee will review accepted manuscripts, but not those that are accepted pending revisions.

Along with the publication or MA thesis, the student and advisor are each requested to submit documentation (less than one page, email OK) covering the following points:

- (1) Why the student believes that the paper serves as a replacement for an ACE exam.
- (2) For a multi-authored work, what the contribution of the student was relative to other authors.
- (3) The advisor's take on the student's request (as a separate document).

The ACE committee may ask a student to give an oral presentation (graduate student seminar) based on the publication before a final decision is made. In this case, the student must schedule the talk at a time when committee members can be present. Even if such a presentation is not required by the committee for the decision-making progress, a student should plan to present the work as part of the graduate student seminar, where it will be noted that the talk is specifically based on the advanced exam process.

The committee convenes during the fall and spring semester. The committee will not review any documents over the summer; they can be submitted as of the first day of classes in the Fall until April 15 in the Spring. April 15 is the deadline for submitting a publication for review by this committee in a given academic year. The committee generally takes no longer than two weeks to review unless committee members are traveling for extended periods, in which case the process could take a week or so longer. Students are reminded that if an oral presentation is requested by the committee members, the entire process is likely to be prolonged because of the difficulties of scheduling (and the decision may roll over to the next semester). Students are therefore advised to submit petitions in their first year, and as early in the year as possible.

With advisor approval, students can petition the standing committee to combine one internship with one advanced exam. In this instance, the student works with the mentor from concept through data collection through analysis to conclusions. The student produces a paper at the end, including conclusions and also relevance of the work to broader ecological, evolutionary, environmental biology, or conservation biology issues. The paper would be read by two readers in addition to the mentor. As part of the petition process, students would give a graduate student seminar, where it will be noted that the talk is specifically based on the advanced exam process. To petition, the student will present a proposal (approved by their dissertation committee) to the standing ACE committee on the topic, readings, research and ultimate issues to be addressed.

Students may not petition out of both advanced exams and **MUST** take at least one advanced exam.

## **X. Proposal Defense**

Upon successful completion of core courses, literature review and exams, Ph.D. students will prepare a research proposal. The end goal is to submit this research proposal to a major funding source (NSF, EPA etc.) The will also be defended orally in front of the student's committee as their **proposal defense**. After completing their proposal defense, Ph.D. students are eligible for the M. Phil degree.

It is expected that all dissertation committee members are present at the proposal defense. Given extenuating circumstances, absent committee members must sign-off on the student's proposal (via an email to the ADA) before the student can receive their M. Phil. The role of the committee is to work with the student to determine the best proposal defense format. To that end, students will present their research ideas to their committee and their committee will ask questions to help focus the research. Committee members should ask broad questions regarding the significance of the research to advancing the field.

To ensure efficient scheduling, we strongly suggest the committee agree on a defense date at least two months in advance. Remember, most faculty members have very busy schedules, so the more time they are given, the easier it will be to schedule the defense. After agreeing on a defense date, students must send an electronic or hardcopy of their proposal for committee members to review. Students should also remember to contact their advisor to remind them to alert the ADA of the defense date. The defense must then be officially approved by the ADA. If the proposal defense date is not approved, the student may be forced to register "ER" in the subsequent semester, which may have negative financial consequences. Students would be wise to avoid this with early scheduling.

Students should not submit proposals for advanced dissertation research to funding agencies such as NSF before a successful proposal defense has taken place. It is in the student's best interests to have as much feedback on the proposal as possible before such submission. Following a successful defense, a copy of the proposal, in CD form, along with appropriate forms must be submitted to the ADA.

## **XI. Advancing to Candidacy**

After the Ph.D. student successfully defends the proposal and has completed all other necessary requirements (including core courses, internships, science credits, literature review, and ACEs), the student then advances to candidacy and receives their M. Phil. degree. Forms for advancement to candidacy are signed by each committee member after the proposal defense and subsequently submitted by the student to the ADA.

Although most students will have completed the 24-point Environmental Policy Certificate (EPC) at the time they advance to candidacy, the M.Phil. and EPC are separate degrees (as explained on page 56), and it is not always necessary to have completed the policy certificate to advance to candidacy. In light of the 2009 EPC amendment Ph.D. students may only be required to complete the 12-point policy program. As stated on page 56, please note that completion of the 12-point policy program results in the student **not** obtaining the policy certificate. Students are generally expected to have completed all TA-ships before advancing to candidacy, as TA-ships are a Ph.D. degree requirement. However, under special circumstances (see section on Teaching Assistantships above), a student may postpone one TA-ship until after advancing to candidacy.

### **NSF Proposal Submission (DDIG)**

Note that you cannot apply to NSF (Biology) for a Doctoral Dissertation Improvement Grant (DDIG) until you have advanced to candidacy (this is an NSF rule). Applications to NSF for the DDIG occurs once a year (generally in November but varies depending on the program), so keep this deadline in mind as you make your schedule.

### **Research Scheduling**

Advancing to candidacy is required before a Ph.D. student begins substantial work on dissertation research. Substantial work includes fieldwork and lab work that is no longer preliminary or pilot work. Students should not submit proposals for advanced dissertation research before the proposal defense.

## **XII. Dissertation**

### **A. Dissertation Format**

Dissertation formats are generally up to the student's committee but we provide here specific guidelines:

Students may include published manuscripts in the dissertation, but we recommend a thorough introduction, literature review, and conclusion. Students are expected to be primary authors of all chapters of their dissertation. For published documents or parts in which students are second authors or beyond, the manuscript is often included as an appendix to the dissertation, unless the committee petitions the faculty. Where the work is co-authored, the student must provide a letter to the department detailing the scope of effort they dedicated to the work.

Please note that for any previously published or in press work, students need to seek copyright permission from the journal in which they published their work and to provide the department with letters of permission from the publishers. In addition, on the day of deposit, the student should bring in a copy of these letters to submit to the Dissertation Office along with the copies of their dissertation.

### **B. Dissertation Defense**

Students must register for M&F status through the semester they distribute their thesis. If the defense is held the subsequent semester, the student does not pay further registration fees as long as the dissertation is distributed to the committee before the first day of classes that semester. A confirmation email must be sent to the ADA. For students on visas, please see the ADA for information on contacting ISSO and to discuss options for correct registration status.

Students writing their dissertation normally circulate drafts to their committee members in advance of the dissertation defense. The research advisor normally reads all drafts, sometimes several times if needed, while arrangements with other committee members reflect negotiations with the student, research advisor and other committee members. As these preliminary readings and revisions suggest that the dissertation is reaching its final state, the student makes concrete plans for the dissertation defense (i.e. finds a date that suits all committee members).

Once the committee has decided on a date and time, students must notify the ADA to secure a **final confirmation** from all members that they will be present at the defense. The final confirmation must occur at least one month before the defense date. The application for the defense will *not* be submitted to the Dissertation Office until all committee members have confirmed that the date is acceptable.

Keep in mind that all committee members must receive a copy of the defensible dissertation at least four weeks before the planned defense. Two inside members of the committee must vouch to the ADA that the thesis is indeed defensible at least two weeks before the planned defense. It is only with these two vouchers that the ADA can schedule the defense and formally notify the Graduate School.

The defense itself is held by the Chairperson (not the sponsor) of your committee, following guidelines of the graduate school, and usually lasts at least 2 hours. You should discuss the format of your defense with your chair in advance. Normally, students present an overview of their thesis research, but it is typically brief (10-15 minutes), and serves mainly to focus everyone's attention and to relax the student. The rest of the defense generally involves the committee members asking questions about the research, the thesis and its contribution to the field in general.

Normally, the student is asked to step out of the room twice during the proceedings: at the beginning, as the committee discusses the format of the defense and any other organizational matters, and at the end, when the committee makes its collective judgment. Be aware that it is normal for the student to have additional revisions to make before filing; these can be major or minor. The committee will decide whether parts or the entire thesis need to be seen again by any or all of its members before filing. Timing of revisions follows GSAS guidelines.

A copy of the dissertation, spiral bound, and the deposit card, must be presented to the ADA prior to depositing in Low 107.

### **C. Public Presentation of Dissertation Research**

All students are required to prepare and present a full-length seminar to the department. This seminar will take place around the time of the dissertation defense (ideally just after the defense), but not before a student has submitted the defensible dissertation to the committee. You should schedule the seminar no later than the time you schedule the defense – earlier is better, if you can be reasonably sure of your dates.

## **XIII. Schedule for Ph.D. Progress**

The schedule below is, of course, not personalized. Options may change depending on the student's

background prior to entering the program and the rate at which required coursework is completed.

### **A. Standard Track (6 years)**

This Standard Track model leads to the completion of the E3B Ph.D. and the EPC within a maximum of 6 years. Those opting for the 12-credit policy option may complete their degree in 5.5 years.

**Year 1**      2 Residence Units – courses, teaching

**Year 2**      2 Residence Units – courses, teaching

**Year 3**      2 Residence Units – courses, 2 Advanced Exams, Lit Review, Proposal  
Defense (M.Phil.), teaching

**Year 4**      Extended Residence – (policy) courses if necessary

**Year 5**      Matriculation & Fees – Research Year/out in the field [non-fellowship year]

**Year 6**      M&F/Dissertation Defense (May Commencement)

\*A successful defense by early May will allow student to participate in Commencement

**Note:** Those with four-year fellowships and advanced standing, will start at the Year 2 level. Years 1, 2, 3, 4, and 6 of the full six-year model are fellowship years, in which tuition, CU health coverage, and stipends are provided. Year 5 is a non-fellowship year. M&F is a registration status.

## Standard Model

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Fall Semester</b>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Fundamentals of Ecology &amp; Evolution</li> <li>• Conservation Biology</li> <li>• Science electives</li> <li>• 1 Policy course</li> <li>• E3B Research Seminar</li> </ul> <p>*Speak with advisor about funding</p>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• 1-2 electives</li> <li>• language course if needed</li> <li>• 1-2 policy courses (if pursuing EPC)</li> <li>• Research Seminar</li> </ul> <p>*Biology Internship *TA-ship</p>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Electives as needed</li> <li>• 1-2 policy courses</li> <li>• Research Seminar</li> </ul> <p><u>Tests</u></p> <ul style="list-style-type: none"> <li>• Literature Review</li> <li>• ACE exam</li> </ul> <p>*TA-ship</p>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Directed Research/Readings</li> <li>• 1-2 policy courses</li> <li>• Research Seminar</li> </ul>	<ul style="list-style-type: none"> <li>• Secure outside funding</li> </ul> <p>Research activities.</p>	<ul style="list-style-type: none"> <li>• Write dissertation</li> <li>• <b>Dissertation Defense</b></li> </ul>
<b>Spring Semester</b>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Conservation Biology</li> <li>• 1-2 electives</li> <li>• 1-2 policy courses</li> <li>• Research Seminar</li> </ul> <p>*Biology Internship TA-ship</p> <p>*Application for summer research</p>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• 1-2 electives</li> <li>• 1 language course if needed</li> <li>• 1-2 policy courses (if pursuing EPC)</li> <li>• Research Seminar</li> </ul> <p>*Biology Internship *TA-ship</p>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• 1-2 policy courses</li> <li>• Research Seminar</li> </ul> <p><u>Tests</u></p> <ul style="list-style-type: none"> <li>• Advanced Exam 2</li> </ul> <ul style="list-style-type: none"> <li>• <b>Proposal Defense</b></li> </ul>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Directed Research/Readings</li> <li>• 1-2 policy courses</li> <li>• Research Seminar</li> </ul>	<p>Research activities.</p>	<ul style="list-style-type: none"> <li>• Present dissertation at seminar</li> </ul>

## Fast Track Model

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Fall Semester</b>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Fundamentals of Ecology &amp; Evolution</li> <li>• Science electives</li> <li>• 1 Policy course</li> <li>• E3B Research Seminar</li> </ul>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• 1-2 Policy courses</li> <li>• Directed Readings</li> <li>• E3B Research Seminar</li> </ul> <p><u>Test:</u></p> <ul style="list-style-type: none"> <li>• Literature Review</li> </ul> <p>*Continue TA-ship.</p>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Directed Research/Readings</li> </ul> <p><u>Test:</u></p> <ul style="list-style-type: none"> <li>• 2<sup>nd</sup> ACE Exam</li> </ul> <ul style="list-style-type: none"> <li>• <b>Proposal Defense</b></li> </ul>	<ul style="list-style-type: none"> <li>• Secure outside funding</li> </ul> <p>Research activities.</p>	<ul style="list-style-type: none"> <li>• Write dissertation</li> <li>• <b>Dissertation Defense</b></li> </ul>
<b>Spring Semester</b>	<p><u>Courses:</u></p> <ul style="list-style-type: none"> <li>• Policy courses</li> <li>• Science elective</li> <li>• Conservation Biology</li> <li>• Biology Internship</li> <li>• E3B Research Seminar</li> </ul> <p>*Begin TA-ship.</p>	<p><u>Test:</u></p> <ul style="list-style-type: none"> <li>• 1<sup>st</sup> ACE Exam</li> </ul> <p><u>Course:</u></p> <ul style="list-style-type: none"> <li>• E3B Research Seminar</li> </ul> <p>*Biology Internship (if needed)</p> <p>*Continue TA-ship</p> <p>By end of Year 2, all core course work is completed.</p>	<p>Research activities.</p>	<p>Research activities.</p>	<ul style="list-style-type: none"> <li>• Present dissertation at seminar</li> </ul>

**\*Please note:** in each of the first 5 semesters, even though you are fulfilling your requirements you have an opportunity to engage in research (research internships or Directed Research, plus summer research).

## Requirements at a glance

Milestone	STANDARD MODEL		FAST TRACK (ADVANCED STANDING)	
	Number required	Timing	Number required	Timing
<b>Core courses Ecology &amp; Evolution</b>	1 (4 credits)	First semester	1	First semester
<b>Core Conservation Biology course</b>	1 (3 credits)	Second semester	1 (3 credits)	Second semester
<b>Science courses</b>	40 credits	Anytime semesters 1-6	20 credits	Anytime semesters 1-6
<b>TA</b>	2-4	Anytime semesters 3-8	2-4	Anytime semesters 3-8
<b>Internship</b>	2	Anytime semesters 1-3	1 (w/ waiver from DGS)	Anytime semesters 1-4
<b>Research Seminar</b>		All semesters in residence		All semesters in residence
<b>Policy courses non EPC</b>	12	Anytime semesters 1-6	12	Anytime semesters 1-6
<b>OR Policy courses EPC</b>	24	Anytime semesters 1-8	24	Anytime semesters 1-8
<b>Literature review</b>	1	Semester 5	1	Semester 3
<b>ACE</b>	2	Semester 5, 6	2 (or 1 plus waiver)	Semester 4, 5
<b>Dissertation proposal defense</b>	Once	Semester 6 (after other M.Phil requirements fulfilled)	Once	Semester 4, 5 (after other M.Phil requirements fulfilled)
<b>Dissertation defense</b>	Once	Final semester	Once	Final semester
<b>Oral presentation to department</b>	Once	Semester defending	Once	Semester defending

#### **XIV. Progress Reports/Academic Review**

Each year in late April, students will be reminded by the ADA to update their progress on FileMaker. Advisors will then be asked to look over the entries and make comments. The purpose of the report is to keep our records up to date on your coursework, committee membership, research planning and progress, internships and funding. This information allows the faculty to assess a student's progress at regular intervals, and to intervene for both the students' and the graduate program's benefit when conflicts or problems arise.

The URL for the FileMaker is: <http://128.59.233.20:591/fmi/iwp/cgi?-db=Student&-loadframes>.

Once a year, in May, the faculty collectively reviews each student's progress. Following the meeting, by early summer, students receive a letter from the chair or the DGS; advisors/mentors receive a copy of the letter.

# PH.D. IN ECOLOGY AND EVOLUTIONARY BIOLOGY

(For incoming students admitted 2009 and after)

## I. General Requirements

The Ph.D. program is designed as a five or six-year program, one year of which can be devoted to completing a linked but separate degree, the Environmental Policy Certificate. **Forty total science credits** are required to complete the program, with the exception of students entering with “advanced standing” status. Requirements for the Certificate are detailed in the section “Environmental Policy Certificate.” Requirements for the EEB Ph.D. include:

- 2 core courses (section A)
- elective courses\* (section C)
- thesis development seminar (section D)
- 2 broader context requirement (section E)
- 2-4 semesters as a teaching assistant
- oral general knowledge exam
- proposal defense
- dissertation defense

*\*Core courses, elective courses and thesis development seminar all count towards the **total 40 science credits** needed for program completion.*

## A. Core Courses

Core courses prepare students to work as professionals in their field by bringing them to a similar advanced level, and introducing them to the latest developments in the field. Core courses are not ‘special topics’ courses covering only the latest developments, to the exclusion of a background body of knowledge. The format of core courses includes:

- (i) background textbook reading for students who need to catch up, even if the main readings come from the literature;
- (ii) formal and objective evaluations that occur throughout the semester; and
- (iii) substantial lecture time and student participation/discussion.

All first-year Ph.D. students are required to take 2 core courses in the first year:

1. **Fundamentals of Ecology and Evolution** (EEEE 4122)
2. **Graduate Seminar in Conservation Biology** (EEEE 6905) or **Topics in Conservation Biology** (EEEE G6990)

Ph.D. students are also strongly urged to take **Evolution** (EEEE 6110) and in some cases, a student’s adviser or committee may require this course.

In addition to the above core courses, all students must take the **Research Seminar** (EEEE G6300) for the first 4 years (3 years for those with advanced standing), and attendance is expected thereafter whenever a student is in residence in New York City. Note that this course consists of two parts – the first consists of graduate student research presentations while the second consists of research from faculty, postdoctoral fellows, Ph.D. students who have defended, and visiting scholars.

## **B. Grading**

Students receiving a grade of less than B in core courses are required to take a written exam at the end of the first summer based on assigned readings, and must pass this exam to claim successful completion of the core course requirement. (Please see pages 21-22 for details on grading procedures.)

## **C. Electives (Biology)**

*We refer here to elective courses in biology. EPC elective courses are discussed later under (“Environmental Policy Certificate”).* Students without advanced standing are required to take a total of 40 science credits, which include core courses, the E3B Research Seminar, directed research and readings and elective courses. Those with advanced standing are required to take a total of 20 science credits.

Elective courses provide specialized training in one or more of the areas of program specialization: evolution, ecology, population biology, systematics, ethnoscience, and behavior. Courses taken to fulfill foreign language requirements are not considered “science” credits. Generally we recommend students take 5-6 electives total (3-4 for students with advanced standing). Students’ mentors and committees should advise on the number and content of elective courses; the DGS may also be consulted.

Keep in mind that courses at other selected universities in the area, those that are part of the inter-university doctoral consortium (CUNY, NYU, Stony Brook, Princeton, AMNH etc.), can be used as electives. You will need to consult those universities’ websites for information on current course offerings, and complete the appropriate paperwork (available from GSAS, not the department). Students generally fulfill additional credits with directed readings and research courses. They give the student the freedom to design their own course of study, within their supervisor’s guidelines. To that end, students and supervisors should discuss expectations about the amount of time devoted to the directed studies, the frequency of meetings, and what they anticipate resulting products to be, and then summarize this information in the directed studies form. The form has to be signed by the supervisor and DGS. Generally, students are expected to devote 3-4 hours of directed studies per week for one credit, so for example a student would spend about 10-12 hours per week on a three-credit course

## **D. Mandatory Thesis Development 6-Credit Seminar**

This course will help guide E3B Ph.D. students towards candidacy by teaching them the skills necessary to be effective and independent scientists. Students will conduct an extensive literature review, write a preliminary dissertation proposal, and present their research ideas to the group on multiple occasions. Students will learn how to give and receive constructive written and oral feedback on their work. The course will be designed specifically to engage students in research early in their academic careers and teach them the necessary skills to be effective and independent researchers. The course will focus on acquisition of the following skills:

- 1) Synthesize scientific literature and understand the “big picture” of science;
- 2) Develop research and dissertation proposals;
- 3) Critique scientific ideas (written and oral critique);
- 4) Discuss research with peers and give both formal and informal scientific talks.

Note that advisors of all students enrolled in the course will present to the group once during the semester (i.e., Parade of Scientists). The focus of these talks will be to provide students with a broad framework on the research overview of the advisor’s lab. Additionally, advisors will play an important role in reviewing and providing written feedback on students’ written assignments (as will peers and instructors). Students should leave the class with (1) a review paper that can form the basis of a publishable paper; and (2) a preliminary thesis proposal that can form the basis for the NSF DDIG and for the larger dissertation proposal/defense.

Students will meet once a week to hear lectures by the instructors, faculty mentors, or student peers. They will also give at least four presentations on their own research ideas. Focus will be on teaching students constructive critical skills and to aid in development of predictive hypotheses and viable research questions. Students will be taught about grant writing and reviewing/refereeing manuscripts and grants. Students will provide written feedback to their peers on drafts of literature reviews and proposals, as well as oral feedback on presentations. Instructors will also provide written and oral feedback on documents and presentations. Advisors will provide written feedback on all drafts of literature reviews and proposals for their own students.

Assignments for this course include both written papers and oral presentations. Feedback will be given by instructors, peers in the class, and each student's own graduate advisor. All written feedback will be turned into the instructors (including from the advisors). Each written assignment will require three drafts. Written assignments include:

- 1) A literature review (in the format of TREE; 3,000 word limit)
- 2) A dissertation thesis proposal; including preliminary data analysis (in the format of an NSF DDIG; 8 page limit).

Oral assignments include:

- 1) A presentation of the theoretical framework related to the dissertation (30 min limit)
- 2) A presentation of the empirical work related to the dissertation (30 min limit)
- 3) A preliminary presentation of the dissertation research ideas (30 min limit)
- 4) A presentation of the dissertation proposal (1 hr limit)

The literature review in the thesis development course replaces the Literature Review requirement in the present system. By folding this requirement into the course, we expect to accelerate its completion and to reduce the psychological effects the current large number of hurdles has on students. Students will presumably be building on readings they have done prior to this class and it is important to note that students will receive rigorous criticisms from advisors, faculty, and students on three draft of this document. For this reason, we expect the new format will improve the quality of the literature review.

### **E. Broader context requirements**

An emphasis on training in public policy and the broader context for scientific decisions is a hallmark of this degree, differentiating it from other Ecology and Evolution departments. To this end, we will encourage all students with the interest and resources to complete the Environmental Policy Certificate (EPC). During recruitment, applicants for the EEB Ph.D. will be evaluated with respect to their needs for policy training in light of their professional goals. If the EPC is deemed an important part of the applicant's professional goals and there is sufficient financial support, s/he will be admitted with the understanding that this program takes an additional year. If the EPC seems inappropriate for the applicant's professional goals, a decision that will be made primarily by the prospective adviser in consultation with the faculty during the recruitment process, the candidate will be offered to enroll under one of two non-EPC options.

The first option, designed for those students with some prior background in policy issues and/or without the means to invest in the EPC, will require the student to complete 12 units of coursework spanning the topics of environmental policy, law, and economics with an opportunity for electives related to the students' area of interest (so 3 credits policy, 3 credits law, 3 credits economics, and 3 credits elective).

Students who have already completed a graduate-level degree in policy, or without the means to undertake the EPC or 12-credit option, must take at least two courses in the areas of social science and humanities (e.g., Politics and Policy, Law, Economics, Environmental History, Anthropology, Public

Health, etc.), with a minimum of [5-6] credits. The purpose of this requirement is to maintain the interdisciplinary nature of the degree and to help the student hone a perspective on the public policy context and implications of the scientific issues s/he is studying.

The advisor must submit a short explanation to the DGS (after discussion with student and other committee members) for why the specific social science/humanities courses are the right ones for this student. This must describe how the courses will deepen existing expertise toward the thesis topic, or show how they will contribute to the student's breadth in the conceptual issues and academic framework of social science and humanities.

These policy/context requirements are in addition to the three existing core courses: (1) Ecology and Evolution; (2) Conservation Biology; and (3) required Thesis Development course (described above).

Students fulfilling requirements for the EPC would not need to take any extra social sciences and humanities courses beyond those required for the EPC.

## **I. Committees**

**The advisor, not the student, extends the invitation to faculty to serve on a committee.** The advisor may discuss committee membership with the student in advance, but students are not to set up their own committees (this is a GSAS rule). The advisor also chooses the Chair of the Committee, whose job is to preside at the proposal and thesis defenses. The Chair should be a CU/E3B tenured faculty member who is not the student's advisor (this is a university rule). An advisor may, with compelling reason, petition the Department Chair to allow a Dissertation Committee Chair who is either untenured or non-CU/E3B. These procedures follow Columbia's Ph.D. dissertation guidelines, which state, *"the responsibility for selecting and recommending defense committee members rests with the Dissertation Sponsor, Department Chair, and the DGS. Students may not select their own defense committees..."*

Keep in mind that time is required to nominate and have the committee approved by GSAS. If you propose a committee that differs greatly from the guidelines, please speak to your advisor as soon as possible. Your advisor can then consult with the Chair of E3B and the DGS.

Students will complete the Ph.D. program under the guidance of two of committees whose membership usually overlaps substantially, if not completely.

### **A. Three-Member Advisory Committee**

An entering Ph.D. student has a mentor/advisor, and, in consultation with the mentor, develops a 3-member advisory committee by DECEMBER of the first year of study. If an advisor and student are not able to identify committee members by this time, the DGS and Chair will assign members. The advisory committee gives advice related to course and internship selection, the scheduling of early degree requirements, and early research plans. Typically members of this committee then become part of the dissertation committee.

### **B. Three-Member Orals Committee (plus advisor)**

An orals committee consists of three members, not including the student's primary advisor. The student's advisory committee, guided by the student's advisor, will determine the final composition of the oral examination committee. The members of the orals committee should broadly represent at least two of the three pillars of the Department: (1) ecology; (2) evolution and behavior; and (3) environmental and conservation biology. The orals committee need not consist of the same members as the dissertation committee, but in most instances, there will be substantial overlap between the two committees. The orals committee can include one to two

appropriate faculty members from outside the E3B Department. The advisor can participate in the examination, but must leave the room while the three orals committee members assess the student's performance. In unusual circumstances approved by the DGS, committee members can participate in the examination via conference call (e.g. Skype).

### **C. Five-Member Dissertation Committee**

The responsibility for selecting and recommending the final defense committee members rests with the Sponsor, Department Chair, and the DGS. Students may not select their own defense committees; furthermore, students should not be placed in the position of having to ask particular faculty members to serve on their defense committees.

The doctoral defense will be conducted by a final defense committee that is composed of exactly five members. At least three of the members of the final defense committee must be from the list of approved Ph.D. sponsors, and at least one of the five must be either:

1. a faculty member, clinician or practitioner who holds a position at another university or research institution
2. a full-time CU faculty member outside the student's own department or program
3. a CU research scientist outside the student's own department or program
4. an adjunct professor at Columbia University outside the student's own department or program
5. a full-time faculty member whose appointment is at Barnard College, Jewish Theological Seminary, or Union Theological Seminary OR
6. a full-time faculty member in the student's interdisciplinary program whose field is outside of the student's dissertation field.

Examiners from the list above are nominated by the Department or Program Chair in consultation with the Sponsor or DGS. When submitting the Dissertation Defense Application, the department/ program provides the Dissertation Officer with evidence of the examiner's qualifications, usually a curriculum vitae, for approval by the Dean's office.

Final approval of the members of a final defense committee rests with the Dean of the Faculty of the Graduate School of Arts and Sciences.

When proposing defense committee members who have not been previously approved to serve on a defense committee and who

- do not have a Columbia affiliation, and/or
- do not serve at Columbia in an adjunct capacity, and/or
- do not hold a Ph.D.,

Ph.D. programs must submit to GSAS a copy of their curriculum vitae together with the final defense examination.

### **D. Committee Meetings**

Students will meet at minimum once per year with their committees, preferably by early March. The advisor must report annually (generally in late March, and always before May 1) to the DGS on progress towards candidacy. The report should be roughly one page in length following guidelines on the website. Advisors should address the following in their annual report:

- Have the student and advisor agreed on due dates for both the upcoming year's progress (exams,

coursework, literature review, etc.) as well as due dates for the progress for the entire doctoral program (i.e. expected graduation date)?

- Has the student met all due dates for goals for the given academic year? If not, why?
- If student has not met goals, have the advisor and student set guidelines on how to get back on track? What are the guidelines?
- Has the student or advisor made progress on securing funding for the doctoral research (number of grants applied/number of grants awarded)?
- Has the student submitted or published any papers during the reporting period?
- Are there any notable deficiencies in the student's academic progress? If so, how are these being addressed?

### **E. Orientation**

In the fall semester of the student's first year, each advisor will meet with the DGS and student and any identified committee members to go over the student's proposed timeline, identify other potential committee members, discuss possible field experiences for the first summer, etc.

## **II. Preliminary research experience**

In their first year, students are expected to develop a preliminary project, from the general concept/design through implementation, the latter scheduled generally for the summer of their first year. Students can apply for competitive funding from the department as well as the funds they apply for from outside the university. **THE PROPOSAL MUST BE SUBMITTED TO ADVISORS AT LEAST TWO WEEKS PRIOR TO DUE DATE IN THE DEPARTMENT.** Those who receive funding from the department are obligated to write the results in a journal format appropriate to their field (submitted to their committee and the department) and/or present their results/experiences (with a focus on methods and data analysis) in a Tuesday seminar.

## **III. Internships**

While there are no formal required internships, students will be encouraged where appropriate to work on internships with experts other than their advisors. If resources are available, the department will continue to provide a small amount of funding to offset lab costs for the mentor.

## **IV. Language Requirements**

Students are required to demonstrate proficiency in foreign languages as needed for their specific fieldwork locations. Proficiency is assessed by university examination or the program. For each student, language requirements are determined by the student's committee, which consults with the Chair of E3B and the DGS as needed. Imposition of a language requirement depends on whether the student will conduct research (i.e. field work) in a location in which a foreign language is the primary means of dialogue. If an exam is taken, the results are to be recorded on the Grade Form by the examiner and submitted to the ADA.

## **VI. Teaching Assistantships**

Graduate students planning a career in academia often underestimate the importance of teaching experience needed to obtain a job offer. Job candidates for university-level positions are often judged on their potential to fill a particular teaching niche (e.g. "We need a behavioral ecologist"), their potential to teach a variety of courses (e.g. "We need a teacher in behavioral ecology, vertebrate morphology, biometry, and introductory biology"), and the quality of their teaching (judged from student evaluations, letters of reference etc.). It is rare not to be asked to include a statement on your teaching

experience, objectives, style, and goals in your job application.

### **A. Teaching Assistantship Requirements**

With these demands in mind, all Ph.D. students are required to teach for 2-4 semesters. Teaching duties normally fall between the 2<sup>nd</sup> semester of the first year and the 2<sup>nd</sup> semester of the third year of study, depending on the availability of teaching opportunities. In exceptional circumstances, which include unusual student priorities and the ability of the department to accommodate the irregularity, a student may be able to postpone one semester of teaching up to and including the penultimate year in the program. Any such plan is most likely to be realized if it is discussed early on with the DGS. There is no additional monetary compensation provided to the TAs since teaching obligations are a component of all fellowships and are a requirement for the degree.

### **B. Assigning Teaching Assistantships**

The Chair and the DGS will assign teaching assistantships. Students will be asked by the ADA to submit preferences for TA-ing particular courses (during Spring semester) and efforts will be made to match the TA to the course s/he desires. However, a perfect match is not always possible.

In making TA assignments, we take into account student and faculty preferences, special skills, and previous assignments and the needs of the student's educational program and the department's instructional program. The number of TA's assigned to a course is based on anticipated enrollment, demands of the course and teaching style of the instructor. TAs and instructors will be notified of assignments at the end of the spring semester for the following academic year.

#### **Please note:**

- \*You cannot TA for a course for which the department has not officially allocated a TA position.
- \*You cannot enroll in a course for which you are the TA.
- \*The departmental teaching guidelines provide useful information about the TA experience, and are included as an Appendix to this handbook.

## **VII. Oral General Knowledge Exam**

*The "Oral Exam" is designed to test breadth in biological knowledge. Much of the learning takes place in the broad reading that students will do in preparation for the exam, and in conversations with committee members about what the student should prepare.*

The Oral Exam is designed to broadly test students' knowledge in ecology, evolution, and environmental biology. The exam will consist of a 2-3 hour oral examination by an orals committee. Students will be judged in their abilities to think critically and demonstrate a broad base in biological and environmental knowledge. Although the timing of the exam will vary, most students will be expected to take the exam by the end of their fourth semester.

An orals committee shall consist of three members, not including the student's primary advisor. The advisor can participate in the examination, but must leave the room while the other three committee members assess the student's performance. The members of the orals committee should broadly represent at least two of the three pillars of the Department: (1) ecology; (2) evolution and behavior; and (3) environmental and conservation biology. The orals committee need not consist of the same members as the dissertation committee, but in most instances, there will be substantial overlap between the two committees. The committee can include one to two appropriate faculty members from outside the E3B Department. In unusual circumstances approved by the DGS, committee members can participate in the examination via conference call (e.g. Skype).

The orals committee is tasked with the goal of engaging students in an active dialogue about a broad range of relevant issues. Students should meet with each member of their orals committee at least once (and preferably more than once) prior to the examination. The student should initially present the examiner with a preliminary reading list and some general topics that are relevant to their interests, the expertise of the committee member, and the general goals of the exam. Discussions between the student and committee members should serve to refine the reading list and provide general guidance as to the scope of the exam. However, while students are to work with their orals committee prior to the exam to discuss a range of potential topics, the committee is free to ask any questions that they deem relevant.

If a student does not pass the oral exam, the orals committee may choose to assign the student a provisional pass and proscribe a written follow-up. The student will then have two weeks to complete the assignment and respond to the committee. The committee may choose to reconvene with a follow-up oral exam where the student will be asked about their written responses, plus any follow-up question the committee deems necessary. A student failing the orals exam will be dismissed from the program.

## **VII. Proposal defense**

Upon successful completion of core courses, oral review and exams, Ph.D. students will prepare a research proposal. One month prior to the proposal defense, students will submit their written research proposal to their committees, in the form that would be submitted to a major funding source (e.g. NSF, EPA, USDA). After successful completion of their proposal defense, Ph.D. students are eligible for the M. Phil degree.

It is expected that all dissertation committee members are present at the proposal defense. Given extenuating circumstances, absent committee members must sign-off on the student's proposal (via an email to the ADA) before the student can receive their M. Phil. The role of the committee is to work with the student to determine the best proposal defense format. To that end, students will present their research ideas to their committee and their committee will ask questions to help focus the research. Committee members should ask broad questions regarding the significance of the research to advancing the field.

To ensure efficient scheduling, we strongly suggest the committee agree on a defense date at least two months in advance. Remember, most faculty members have very busy schedules, so the more time they are given, the easier it will be to schedule the defense. After agreeing on a defense date, students must send an electronic or hardcopy of their proposal for committee members to review. Students should also remember to contact their advisor to remind them to alert the ADA of the defense date. The defense must then be officially approved by the ADA. If the proposal defense date is not approved, the student may be forced to register "ER" in the subsequent semester, which may have negative financial consequences. Students would be wise to avoid this with early scheduling.

Students should not submit proposals for advanced dissertation research to funding agencies such as NSF before a successful proposal defense has taken place. It is in the student's best interests to have as much feedback on the proposal as possible before such submission. Following a successful defense, a copy of the proposal, in CD form, along with appropriate forms must be submitted to the ADA.

## **IX. Advancing to Candidacy**

After the Ph.D. student successfully defends the proposal and has completed all other necessary requirements (including core courses, internships, science credits, literature review, and ACEs), the

student then advances to candidacy and receives their M. Phil. degree. Forms for advancement to candidacy are signed by each committee member after the proposal defense and subsequently submitted by the student to the ADA.

Although most students will have completed the 24-point Environmental Policy Certificate (EPC) at the time they advance to candidacy, the M.Phil. and EPC are separate degrees (as explained on page 56), and it is not always necessary to have completed the policy certificate to advance to candidacy. In light of the 2009 EPC amendment Ph.D. students may only be required to complete the 12-point policy program. As stated on page 56, please note that completion of the 12-point policy program results in the student **not** obtaining the policy certificate. Students are generally expected to have completed all TA-ships before advancing to candidacy, as TA-ships are a Ph.D. degree requirement. However, under special circumstances (see section on Teaching Assistantships above), a student may postpone one TA-ship until after advancing to candidacy.

### **NSF Proposal Submission (DDIG)**

Note that you cannot apply to NSF (Biology) for a Doctoral Dissertation Improvement Grant (DDIG) until you have advanced to candidacy (this is an NSF rule). Applications to NSF for the DDIG occurs once a year (generally in November but varies depending on the program), so keep this deadline in mind as you make your schedule.

### **Research Scheduling**

Advancing to candidacy is required before a Ph.D. student begins substantial work on dissertation research. Substantial work includes fieldwork and lab work that is no longer preliminary or pilot work. Students should not submit proposals for advanced dissertation research before the proposal defense.

## **X. Dissertation defense**

Students writing their dissertation normally circulate drafts to their committee members well in advance of the dissertation defense. The research advisor then reads all drafts, sometimes several times if needed, while arrangements with other committee members reflect negotiations with the student, research advisor and other committee members. As these preliminary readings and revisions suggest that the dissertation is reaching its final state, the student makes concrete plans for the dissertation defense (i.e. finds a date that suits all committee members).

Once the committee has decided on a date and time, students must notify the ADA to secure a **final confirmation** from all members that they will be present at the defense. The final confirmation must occur at least one month before the defense date. The application for the defense will *not* be submitted to the Dissertation Office until all committee members have confirmed that the date is acceptable.

Keep in mind that all committee members must receive a copy of the defensible dissertation at least four weeks before the planned defense. Two inside members of the committee must vouch to the ADA that the thesis is indeed defensible at least two weeks before the planned defense. It is only with these two vouchers that the ADA can schedule the defense and formally notify the Graduate School.

Students must be registered for M&F through the semester that their thesis is distributed. If the defense is held the subsequent semester, the student does not pay further registration fees as long as the dissertation is distributed to the committee before the first day of classes that semester. A confirmation email must be sent to the ADA. For students on visas, please see the ADA for information on contacting ISSO and to discuss options for correct registration status.

### **Emergency Absentee**

A committee is permitted to convene in the absence of one member only in cases of extreme circumstance or emergency. The absent member may not be the Ph.D. candidate's sponsor, or the chair of the committee. If a member of a committee will not be able to attend the defense, the Dissertation Officer must be notified prior to the defense to obtain approval of the Dean. If the Dean grants permission for the defense to take place, the absent member is required to write a detailed letter containing all comments and questions that would normally be raised at the defense and his or her provisional vote. The Chair of the committee will present these questions to the candidate, rule on the candidate's responses, and signs the voting sheet in the absent committee member's name.

If the emergency that prevents the member from being present cannot be anticipated, the absent member is requested to comply with the regulations above as soon as possible AFTER the defense. The vote will not be considered final until the required letter has been submitted to the Dean's Office by the absent member of the committee.

Questions, comments and a vote must be submitted in writing even if the absent committee member participates via conference-call. The dissertation office cannot make arrangements for conference call set-up, projectors or audio equipment.

The defense itself is held by the Chairperson of your committee and usually lasts at least 2 hours. You should discuss the format of your defense with your chair in advance. Normally, students present an overview of their thesis research, but it is typically brief (10-15 minutes), and serves mainly to focus everyone's attention and to relax the student. The rest of the defense generally involves the committee members asking questions about the research, the thesis and its contribution to the field in general.

Normally, the student is asked to step out of the room twice during the proceedings: at the beginning, as the committee discusses the format of the defense and any other organizational matters, and at the end, when the committee makes its collective judgment. Be aware that it is normal for the student to have additional revisions to make before filing; these can be major or minor. The committee will decide whether parts or the entire thesis need to be seen again by any or all of its members before filing. Timing of revisions follows GSAS guidelines.

A copy of the dissertation, spiral bound, and the deposit card, must be presented to the ADA prior to depositing in Low 107.

## **XI. Progress Reports/Academic Review**

Each year in late April, students will be reminded by the ADA to update their progress on FileMaker. Advisors will then be asked to look over the entries and make comments. The purpose of the report is to keep our records up to date on your coursework, committee membership, research planning and progress, internships and funding. This information allows the faculty to assess a student's progress at regular intervals, and to intervene for both the students' and the graduate program's benefit when conflicts or problems arise.

The URL for the FileMaker is: <http://128.59.233.20:591/fmi/iwp/cgi?-db=Student&-loadframes>.

Once a year, in May, the faculty collectively reviews each student's progress. Following the meeting, by early summer, students receive a letter from the chair or the DGS; advisors/mentors receive a copy of the letter.

## New Ph.D. Track Model

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Fall Semester</b>	<p><u>Courses</u></p> <ul style="list-style-type: none"> <li>• Fundamentals of Ecology &amp; Evolution</li> <li>• Broader context course</li> <li>• Directed Readings/Research</li> <li>• E3B Research Seminar</li> <li>• Teaching Assistantship</li> </ul> <p>*Form initial committee*</p>	<p><u>Courses</u></p> <ul style="list-style-type: none"> <li>• Thesis development course</li> <li>• Seminars</li> <li>• Teaching Assistantship</li> </ul>	<p><b>Proposal defense</b></p> <p>*Lab/field work/write-up dissertation</p>	<p>*Secure outside funding.</p> <p>*Lab/field work/write-up dissertation.</p>	<p>Lab/field work/write-up dissertation.</p> <p><b>Dissertation Defense</b></p>
<b>Spring Semester</b>	<p><u>Courses</u></p> <ul style="list-style-type: none"> <li>• Conservation Biology</li> <li>• Directed Readings/Research, to prepare synthetic literature review</li> <li>• Broader context course</li> <li>• Seminars</li> <li>• Teaching Assistantship</li> </ul>	<p><u>Exam</u></p> <ul style="list-style-type: none"> <li>• Oral exam</li> <li>• Continue proposal writing and prepare for field work</li> <li>• Teaching Assistantship</li> </ul>	<p>*Lab/field work/write-up dissertation</p>	<p>* Lab/field work/write-up dissertation.</p>	<p>Public presentation of thesis.</p>

**Note:** Students with advanced standing may place out of some of the required courses in Year 1 and could sit for orals and proposal defense earlier than those without advanced standing. Nevertheless these decisions will be made by the student and his/her committee

## **Funding: general model**

Students are expected to secure funding from an external source for their unfunded year. Such funding may come from grants made to the student or to his/her advisor. Please note some funding sources do not qualify as “external” and are not acceptable. For example, a university-derived fellowship is not considered external funding. Always check with the ADA to be certain of the applicability of funds you wish to apply to your externally funded year.

Students who obtain an additional year of funding in advance of their final year should consult with the DGS, ADA, and their advisor concerning effective distribution of resources. Funding must cover research costs as well as stipend. The department makes every effort to cover the Matriculation and Fees (M&F) charges for students during their externally funded year. Students who deviate from the schedule of completion of various degree ‘milestones’ (see below) may find themselves in a disadvantageous position with respect to funding.

It is the responsibility of the student and their committee to ensure the timely completion of a Ph.D. in the absence of an externally funded year. If a student has not secured funds for his or her externally funded year at the end of their third year for most students or end of their second year for students with advanced standing, their committee is to devise a Ph.D. timeline with benchmarks that ensures the student finishes without an additional year. Should a student secure external funds past their third year, the timeline and benchmarks can be adjusted.

### **Financial deadlines**

**(1) The first deadline** falls at the end of the 4<sup>th</sup> year for students without advanced standing (and at the end the 3<sup>rd</sup> year for those with advanced standing). This is the deadline for completion of all requirements for the M. Phil. and EPC certification (including all courses, internships, advanced exam, lit review, proposal defense & at least two TA-ships).

**(2) The second deadline** falls after the student’s last internally, E3B-funded semester. Students are given until the first date of the new semester to meet with their committee and discuss external funding.

### **Consequences**

If you miss the first deadline, you will need to pay the difference between M&F and Extended Registration (ER) tuition until your requirements have been completed. If you miss deadline 2, you will have to pay M&F for the semester(s) after your last funded semester.

### **Reminders**

E3B has found many students tend to complete their general requirement milestones towards the end of Spring semester. To avoid missing completions of a milestone remember:

- You must be officially enrolled during the semesters you decide to take your 2 core courses.
- Your dissertation must be distributed to each committee member before the 1st day of the subsequent semester (summer session included). If that has occurred, no additional M&F will be charged even if the defense does not occur until sometime during the new semester.

\*The key is you must be registered during the semester you distribute your dissertation.\* If you are unsure about your particular situation, see the ADA for clarification.

# PH.D. IN EVOLUTIONARY PRIMATOLOGY

## I. General Requirements

The Ph.D. program is designed as a five-year program. The requirements for the Ph.D. include core courses, elective courses, two research/reading internships, experience as a teaching assistant, 2 advanced exams, a literature review, an oral proposal defense, a dissertation (orally defended), and a public presentation of the dissertation. Six units of full-time residency (4 for students with advanced standing) are required by the Graduate School of Arts and Sciences.

## II. Committees

Students are admitted to the program to work with a particular research advisor. However, students complete the Ph.D. program under the guidance of a dissertation committee. The dissertation committee consists of exactly 5 members, and must be constituted before the student begins any serious research. Its role is to guide the student in developing a research project, to evaluate the research proposal formally and collectively during the oral proposal defense, and to evaluate the finished dissertation formally and collectively during an oral dissertation defense. It is important to have the 5-member committee in place before the proposal defense: this allows all members of the dissertation committee to become involved in the student's research at an early stage when they can be most helpful. Faculty members may be reluctant to join dissertation committees at the last minute, since they are likely then to have had relatively little input. However, it is sometimes necessary to change committee members between the proposal and dissertation defenses due to changes in faculty availability or research emphasis. In addition, it is technically acceptable, if not advisable, for a student to have the proposal defense with as few as 3 members of the dissertation committee present (this is a GSAS rule: at least 3 must be there including the sponsor, and these three must be GSAS members). Any changes in committee membership must be formally approved by the department chair and DGS.

Each Ph.D. STUDENT SHOULD OBTAIN "THE PH.D. DISSERTATION: RESEARCH PROPOSAL, SPONSORSHIP, DEFENSE AND DEPOSIT" INFORMATION PACKAGE from the administrative assistant. It contains GSAS forms and information on the Dissertation Committee, Proposal Defense, and Dissertation Defense. The detailed regulations and policies of the Ph.D. Dissertation for Columbia University Graduate School of Arts and Sciences are thoroughly described here. Relevant information can also be found in the GSAS Bulletin and on the web at:

<http://www.columbia.edu/cu/gsas/dissertationoffice.html>. After consulting these sources, direct any residual questions to the DGS or the ADA. NOTE: Please submit all forms to the ADA, not to the Dissertation Office.

The responsibility for selecting and recommending the final defense committee members rests with the Sponsor, Department Chair, and the DGS. Students may not select their own defense committees; furthermore, students should not be placed in the position of having to ask particular faculty members to serve on their defense committees.

The doctoral defense will be conducted by a final defense committee that is composed of exactly five members. At least three of the members of the final defense committee must be from the list of approved Ph.D. sponsors, and at least one of the five must be either:

1. a faculty member, clinician or practitioner who holds a position at another university or research institution
2. a full-time CU faculty member outside the student's own department or program

3. a CU research scientist outside the student's own department or program
4. an adjunct professor at Columbia University outside the student's own department or program
5. a full-time faculty member whose appointment is at Barnard College, Jewish Theological Seminary, or Union Theological Seminary OR
6. a full-time faculty member in the student's interdisciplinary program whose field is outside of the student's dissertation field.

Examiners from the list above are nominated by the Department or Program Chair in consultation with the Sponsor or DGS. When submitting the Dissertation Defense Application, the department/ program provides the Dissertation Officer with evidence of the examiner's qualifications, usually a curriculum vitae, for approval by the Dean's office.

Final approval of the members of a final defense committee rests with the Dean of the Faculty of the Graduate School of Arts and Sciences.

When proposing defense committee members who have not been previously approved to serve on a defense committee and who

- do not have a Columbia affiliation, and/or
- do not serve at Columbia in an adjunct capacity, and/or
- do not hold a Ph.D.,

Ph.D. programs must submit to GSAS a copy of their curriculum vitae together with the final defense examination. Through this procedure, members of the NYCEP consortium may be approved to act as an “insider” on the committee, i.e. as someone on the list of approved sponsors.

## **II. Funding: general model**

Students are expected to secure funding from an external source for their unfunded year. Such funding may come from grants made to the student or to his/her advisor. Please note some funding sources do not qualify as “external” and are not acceptable. For example, a university-derived fellowship is not considered external funding. Always check with the ADA to be certain of the applicability of funds you wish to apply to your externally funded year.

Students who obtain an additional year of funding in advance of their final year should consult with the DGS, ADA, and their advisor concerning effective distribution of resources. Funding must cover research costs as well as stipend. The department makes every effort to cover the Matriculation and Fees (M&F) charges for students during their externally funded year. Students who deviate from the schedule of completion of various degree ‘milestones’ (see below) may find themselves in a disadvantageous position with respect to funding.

It is the responsibility of the student and their committee to ensure the timely completion of a Ph.D. in the absence of an externally funded year. If a student has not secured funds for his or her externally funded year at the end of their third year for most students or end of their second year for students with advanced standing, their committee is to devise a Ph.D. timeline with benchmarks that ensures the student finishes without an additional year. Should a student secure external funds past their third year, the timeline and benchmarks can be adjusted.

### **Deadlines**

Two particular deadlines should be borne in mind because of the financial consequences of not meeting them:

**(1) The first deadline** falls at the end of the 4<sup>th</sup> year for students without advanced standing (and at the end the 3<sup>rd</sup> year for those with advanced standing). This is the deadline for completion of all requirements for the M. Phil. and EPC certification (including all courses, internships, advanced exam, lit review, proposal defense & at least two TA-ships).

**(2) The second deadline** falls after the student's last internally, E3B-funded semester. Students are given until the first date of the new semester to meet with their committee and discuss external funding.

### **Consequences**

If you miss the first deadline, you will need to pay the difference between M&F and Extended Registration (ER) tuition until your requirements have been completed. If you miss deadline 2, you will have to pay M&F for the semester(s) after your last funded semester.

### **Reminders**

E3B has found many students tend to complete their general requirement milestones towards the end of Spring semester. To avoid missing completions of a milestone remember:

- You must be officially enrolled during the semesters you take your core courses.
- Your dissertation must be distributed to each committee member before the 1st day of the subsequent semester (summer session included). If that has occurred, no additional M&F will be charged even if the defense does not occur until sometime during the new semester.

\*The key is you must be registered during the semester you *distribute* your dissertation.\* If you are unsure about your particular situation, see the ADA for clarification.

## **IV. Core Courses**

First year students are required to take the yearlong NYCEP core course which integrates the areas of evolutionary morphology, genetics, and primate behavior and ecology. Students receiving a grade of less than B+ in this course are required to take a written exam at the end of the first summer based on the course material. In addition, students must take the NYCEP seminar in both semesters of the first two years of study, and attendance is expected thereafter if the student is resident in New York.

In addition to the above two courses, we strongly recommend that students in the Evolutionary Primatology program take the E3B Thesis Development Seminar in the Fall of their second year (see description under Ecology & Evolution PhD program).

## **V. Elective Courses**

Elective courses provide specialized training in one or more of the major subdivisions of evolutionary primatology. Students usually select at least 3 such courses, which may be taught in other departments at Columbia, as well as through the consortium with CUNY, NYU and RGGS (AMNH). Students are expected to take advanced statistics courses to gain the proficiency they will need for their research.

NYCEP faculty try to circulate lists of relevant courses in advance of the semester in which they are offered, but there can be last minute changes that are not included in those lists. Students should therefore take it upon themselves to consult listings at the other institutions, as well as Columbia's listings: it is a good idea to look in departments of Anthropology, Biology, and Psychology for courses of potential interest. Keep in mind that courses at other selected universities in the area, those that are part of the inter-doctoral consortium (CUNY, NYU, Stony Brook, Princeton, etc.), can also be used as electives. Courses must be graduate level for the student to receive credit.

Students generally fulfill credits beyond the coursework with directed studies, either directed research or directed readings. Students sign up for directed research credits for supervised, hands-on research experiences where students are actively collecting and analyzing data. Students earn directed readings credits for supervised literature explorations. Students and their supervisors first discuss the amount of time each expects to devote to the directed studies and what they anticipate resulting products to be and then summarize this information in the directed studies form, which has to be signed by the supervisor and the Director of Graduate Studies. Generally, students are expected to devote 3-4 hours of directed studies per week for one credit. So a student would spend about 10-12 hours per week on a three-credit course. When a student conducts an internship, it is typical to sign up for a directed research/readings course at the same time (to “get credit” for the internship).

## **VI. Internships**

Two internships are required on distinct topics, one with a NYCEP mentor outside Columbia, and one that brings an interdisciplinary aspect to the student’s broad area (three being recognized, which are behavior/ecology/conservation, evolutionary morphology, and genetics). Internships are chosen in consultation with the advisor, the internship mentor, and any committee members if a committee has been constituted. At least one internship should be completed in the first year of study.

The purpose of the internship program is to train students in research methods through participation in specific faculty research projects, or through collaboration with faculty on new projects. Internships are expected to produce students with practical research experience. In addition to collecting data, students are trained in data analysis, and, if possible, the production of a manuscript ready for scientific review. Internships may also provide students an opportunity to generate preliminary data that can be included when submitting grant proposals.

Students with advanced standing should confer with their adviser, the DGS and the CU-NYCEP coordinator to determine if their experience may suffice to waive one of the two required internships. For example, a student with an M.A. or M.S. in a related field from another institution may be able to demonstrate that they have had training in research methods through participation in research projects with faculty at another university.

## **VII. Scholarly Language**

Students are required to demonstrate proficiency in foreign languages as needed for their specific fieldwork locations. Proficiency is assessed by university examination or the department.

For each student, language requirements are determined by the student’s committee, which consults with the Chair of E3B and the DGS as needed. Imposition of a language requirement depends on whether the student will conduct research (i.e. field work) in a location in which a foreign language is the primary means of dialogue. If an exam is taken, the results are to be recorded on the Grade Form by the examiner and submitted to the ADA.

## **VIII. Teaching Assistantship**

Graduate students planning a career in academia often underestimate the importance of teaching experience in getting a job offer. Job candidates for college or university-level positions are often judged on their potential to fill a particular teaching niche (e.g. “We need a behavioral ecologist”), their breadth of knowledge and potential to teach a variety of courses (e.g. “We need someone to teach vertebrate morphology, primate biology, and human biology”), and the quality of their teaching (judged from student evaluations, letters of reference, presentation style during a job seminar, and sometimes a separate teaching seminar). It is rare not to be asked to include a statement on your teaching experience,

objectives, style, and goals in your job application.

With these demands in mind, all E3B Ph.D. students are required to teach for 2-4 semesters. Teaching duties normally fall between the second semester of the first year and the second semester of the third year of study, depending on the availability of teaching opportunities. In exceptional circumstances, which include unusual student priorities and the ability of the department to accommodate the irregularity, a student may be able to postpone one semester of teaching up to and including the penultimate year in the program. Any such plan is most likely to be realized if it is discussed early on with the DGS. There is no additional monetary compensation provided to the TAs since teaching obligations are a component of all fellowships and are a requirement for the degree.

Teaching assignments will be made by the Chair and the Director of Graduate Studies. Students may submit their preferences for TAing particular courses (it is optimal to do this at least half a semester in advance) and efforts will be made to match the TA to the course s/he desires. However, a perfect match is not always possible. In making TA assignments, we take into account student and faculty preferences, special skills, and previous assignments, in the context of the needs of the student's educational program and the department's instructional program. The number of TA's assigned to a course is based on anticipated enrollment together with the demands of the course and the teaching style of the instructor. TA's and instructors will be notified of assignments by the beginning of each semester at the latest.

Please note that:

- you cannot be a TA for a course to which the department has not officially allocated a TA position. (If you TA a course that was not assigned/approved, it will not count towards the requirement.)
- you cannot enroll in a course for which you are the TA.

The departmental teaching guidelines provide useful information about the TA experience, and are included as an Appendix to this handbook.

## **IX. Advanced Comprehensive Examinations (ACE)**

Two advanced written examinations on general topics relevant to the dissertation research must be taken by the end of the 3rd year of study (2nd for those with advanced standing), and normally by the end of the 5th semester. Each exam is read by two faculty members of the student's committee.

The purpose of the ACE is to test a student's ability to think like a professional in his/her field. "Thinking professionally" means being master of information, being able to develop well-grounded critical analyses, and being able to communicate this mastery clearly to others.

The format is a 72-hour take-home open-book exam, in which the student prepares one paper in the style of a TREE (Trends in Ecology and Evolution) or Evolutionary Anthropology article. The answer is limited to 15 pages (double space, 12 point font). The faculty approved this format feeling the exercise was much more like the work the student would actually undertake as a professional than other exam scenarios.

This should be a well-organized, well-argued essay on a question-driven topic. It should not simply review the literature. The overall topic of the exam is agreed upon by student and readers while the student prepares his/her bibliography. The bibliography usually encompasses 100-200 references (only some of which are usually cited in any one exam).

The specific question on which the student will write his/her essay will not be known by the student in advance of the exam. The readers set this question in consultation with each other. The readers should communicate their exam question to the ADA, who will transmit it to the student at the start of the exam.

In setting the question, readers may provide more or less direction. Too little may result in students taking a direction in the essay that was unanticipated (and perhaps not what the readers had in mind). Too much, however, might rob the student of the opportunity to develop his/her own coherent organizational or analytical scheme, which is a critical part of the exercise. We are looking here for students to pull together a larger body of thought in an informed, critical and organized way. Students are expected to provide references, to check their document for proper spelling and formatting and to write well.

Readers give the exam one of the following grades: fail, low pass, pass and high pass. Low pass and high pass are relatively rare grades, meant to acknowledge particular weakness or strength. Most students who pass their exam receive a simple pass. Graders are not required to provide extensive written or oral feedback on the exams to the student; however, they are welcome to give feedback to whatever extent is comfortable. They may choose to communicate through the student's advisor, or directly with the student. It is up to the graders to initiate any communication of this sort.

When the exam is graded, readers transmit their grade to the ADA. They should each do this individually after consultation with one another. They need not submit the same grade if both are within the passing range. However, if one grader feels the student should fail and the other does not, their different opinions need to be resolved.

#### **Practical information for ACEs:**

- Bibliographies for the exams are prepared in the semester before the exam is taken. Bibliographies typically include 100-200 references, and form the basis of literature for which the student is responsible. Student and readers must agree on the bibliographies. (Note that only *some* of the papers in the bibliography are likely to be cited in any one exam.)
- Students should discuss the exam format with the readers! The ADA can send out a set of instructions to readers if needed, so please let him/her know if this is desirable.
- Students should inform the ADA at least 2 weeks prior to the date on which they plan to take the exam. The examiners are to provide the exam question(s) to the ADA at least a week in advance.
- Exam answers are submitted electronically to the ADA and readers as an MS Word file, readable on a Windows based PC (which is what the office uses). Be sure to confirm that the answers were received by the ADA as attachments sometimes cause problems in electronic correspondence!

### **X. Advanced Comprehensive Exam Waiver**

Students with advanced standing (and in rare instances students without advanced standing) can petition (with approval from their advisor) that a previously published scholarly work (which can include literature reviews) or their master's thesis be substituted for one of the advanced exams. The student must be the first author of the work and the topic must be related to Evolutionary Primatology. The petition would go to a standing committee of three appointed each year by the DGS and Chair. (Advisors of a student cannot serve on the standing committee when that student is under consideration; a substitute member will be found.) The committee will review accepted manuscripts (i.e., those in press), but not those that are accepted pending revisions.

Along with the publication or MA thesis, the student and advisor are each requested to submit documentation (less than one page, email fine) covering the following points:

- (1) Why s/he believes that the paper serves as a replacement for an ACE exam.

- (2) For a multi-authored work, what the contribution of the student was relative to other authors.
- (3) The advisor's take on the student's request (as a separate document).

The committee may ask a student to give an oral presentation (graduate student seminar) based on the publication before a final decision is made: in that case, the student must schedule the talk at a time when committee members can be present. Even if such a presentation is not required by the committee for the decision-making progress, a student should plan to present the work as part of the graduate student seminar, where it will be noted that the talk is specifically based on the advanced exam process.

The committee will convene on an ad hoc basis. The committee will not review any documents over the summer, but they can be submitted as of the first day of classes in the Fall until April 15 in the Spring. April 15 is the deadline for submitting materials for review by this committee in a given academic year. The committee will generally take no longer than two weeks for its review unless committee members are traveling for extended periods, in which case the process could take a week or so longer. Students are reminded that if an oral presentation is requested by the committee members, the entire process is likely to be prolonged because of the difficulties of scheduling (and the decision may roll over to the next semester). Students are therefore advised to submit petitions in their first year, and as early in the year as possible.

## **XI. Literature Review**

One in-depth review of the scholarly literature most relevant to the proposed dissertation research, written in the style of an article submitted to a scholarly journal or an introductory chapter of a dissertation, will be submitted for approval by two faculty readers by the end of the third year of study (2nd for those with advanced standing). Normally the literature review is completed by early in the sixth semester.

The literature review is meant to fulfill two goals. First, research and writing the review requires the student to become familiar with the literature relevant to his/her dissertation research. Second, the review acts as the first chapter of the student's dissertation. The following are guidelines for the literature review requirement:

1. Decide upon subject area of literature review in consultation with your advisor and committee. The subject area should parallel your dissertation research.
2. Two readers are needed; your advisor and preferably another member of your committee. A reader not on your committee, however, may be used if s/he can provide a valuable perspective. Your committee must approve any outside readers.
3. Prepare a final bibliography and write the literature review. It should be written in the format of a literature review publishable in a professional journal and will eventually form the basis of the first chapter of your dissertation. Submission of the review for publication is encouraged.
4. Submit a draft to readers for comments. Revise if necessary.
5. Submit final version for a grade (fail, low pass, pass, high pass) to both readers at a mutually agreed upon time. The grades are to be reported to the ADA. As for ACE's, low-pass and high-pass are typically rare grades, meant to acknowledge unusual weakness or strength. (Fortunately fail is even rarer as grade!)
6. A copy of the Literature Review is to be submitted to the ADA on a CD, and copies should also be given to your advisor and readers if requested.

Generally, the literature review takes place prior to advanced exams, as it is the most comprehensive of the requirements, but timing and sequence is entirely up to the committee. Students who have taken the Thesis Development Seminar can update and expand the literature review they worked on in this course.

## **XII. Oral Examination of the Dissertation Proposal**

In the third year (second for students with advanced standing), Ph.D. students prepare a research proposal in a form that would be submitted to a major funding source (e.g. NSF, EPA). Contrary to the GSAS instructions in “The Ph.D. Dissertation” information package, the Proposal Defense occurs before the awarding of an M.Phil., not after. The Proposal Defense is the oral examination, and is thus part of the requirement for the M. Phil. degree as determined by departmental policy. The proposal defense occurs after completion of the two ACEs and the literature review.

It is expected that all members of the dissertation committee will be present at the proposal defense. GSAS rules require a minimum of three present. If there are highly unusual circumstances, it may be possible to schedule a proposal defense in the absence of one or two ‘outside’ committee members. Should such a situation arise, please consult the ADA well in advance. Committee member(s) not present at the proposal defense need to sign off on the proposal via an email to the ADA before the application for the M.Phil. will be submitted. A copy of the proposal, in CD form, along with the appropriate forms must be submitted to the ADA after the successful defense.

The committee will determine the format of the proposal defense. The first part of the defense is typically a presentation of your proposal that is, in principle, open to the public. The remainder of the defense is closed to the public. Generally, students present their proposed research and the committee asks questions to help focus the research. Committee members may also ask broader questions regarding the field and the significance of the research to advancing the field.

The proposal defense date must be officially set by the ADA. The ADA must receive confirmation by email from your advisor that the proposal is ready for dissemination to the committee prior to officially setting the date and confirming it to committee members. The date scheduled will be as close to 4 weeks from receipt of the advisor's notification as possible. It will not be less than 4 weeks hence, but might be more than 4 weeks if there are unavoidable scheduling conflicts (committee members out of town, etc). To ensure trouble-free scheduling, we suggest very strongly that you get your committee to agree on a provisional proposal defense date **AT LEAST TWO MONTHS** ahead of time. It can be very difficult to find a time when all committee members can meet, and harder still when lead times are not on the order of months. Keep in mind that granting agency deadlines set up a crunch time for faculty who are often involved in more than one proposal. Your advance planning will help you meet these deadlines, and that's important. After settling on a target date several months in advance, it is important that you then disseminate the proposal, ensure that your advisor has communicated that fact to the ADA, let the ADA know what date your committee agreed to, and do all these things at least 4 weeks in advance of your target date. Of course this means close coordination with your advisor's timetable too.

Another crunch time for faculty is the end of the semester, and this one may have financial consequences for you. If the proposal is not approved, or if a committee member is away at the end of the semester so that the defense cannot be held, you will be forced to register for ER in the subsequent semester (since you will be completing a degree requirement at that time). An additional semester of ER may have unanticipated (and negative!) financial implications: you need to consider how many funded semesters you have left in your fellowship package. It is a good idea to build in some time before the end of the semester to incorporate changes to the proposal, should they be needed before it is approved.

Students should not submit proposals for advanced dissertation research to funding agencies before a successful proposal defense has taken place. It is in the student's best interests to have as much feedback on the proposal as possible before such submission.

### **Advancing to Candidacy and NSF Grant Proposal Submission**

When you have successfully defended your proposal, and have completed all other requirements (ACE's, literature review, required courses and internships, 40 points of coursework for the Ph.D. program), you will advance to candidacy and receive the M. Phil. degree. Forms for advancement to candidacy are signed by your committee after the proposal defense and submitted by the student to the ADA. Although most students will have completed the EPC at the time they advance to candidacy, the M.Phil. and EPC are separate degrees, and it is not technically necessary for you to have finished the EPC to advance to candidacy. Students are generally expected to have completed all TA-ships before advancing to candidacy, as TA-ships are a (Ph.D.) degree requirement. However, under special circumstances (see section on Teaching Assistantships above), a student may postpone one TA-ship until after advancing to candidacy.

Note that you cannot apply to NSF (Biology) for a Doctoral Dissertation Improvement Grant until you have advanced to candidacy (this is an NSF rule). Check NSF - DDIG deadlines (which differ for the Biology directorate and the physical anthropology program) well in advance.

## **XIII. PREPARING FOR THE DISSERTATION**

### **Dissertation Format**

Dissertation formats are generally up to the student's committee but we provide here specific guidelines:

Students may include published manuscripts in the dissertation, but we recommend as well a thorough introduction, literature review, and conclusion. Students are expected to be primary authors of all chapters of its dissertation. For published documents or parts thereof where students are second authors or beyond, the manuscript would most often be included as an appendix to the dissertation unless the committee petitions the faculty. In any case where the work is co-authored, the student needs to provide a letter to the department explaining in detail the scope of effort they dedicated to the work.

Please note that students need to seek copyright permission from the journal in which they published their work and to provide the department with letters of permission from the publishers. In addition, on the day of deposit, the student should bring in a copy of these letters to submit to the Dissertation Office along with the copies of their dissertation.

### **Dissertation Defense**

As you plan your defense, keep in mind that you must be registered for M&F through the semester in which you distribute your thesis. Even if the defense is held in the subsequent semester, the student does not pay any further registration fees as long as the dissertation is distributed to the committee prior to the first day of classes of the subsequent semester. An email confirming this must be sent to the ADA. For students on visas, please see the ADA for information on when to contact ISSO and also to discuss options for correct registration status.

Students writing their dissertation normally circulate drafts to their committee members in advance of the dissertation defense. The research advisor normally reads all drafts, sometimes several times if needed,

while arrangements with other committee members reflect negotiations with the student, research advisor and other committee members. As these preliminary readings and revisions suggest that the dissertation is reaching its final state, the student makes concrete plans for the dissertation defense (i.e. finds a date that suits all committee members).

Keep in mind that all committee members must receive a copy of the defendable dissertation not less than four weeks before the planned defense. Two inside members of the committee must vouch to the ADA that the thesis is indeed defendable not less than two weeks before the planned defense. It is only with these two vouchers that the ADA can schedule the defense formally with the Graduate School.

The defense itself is chaired by the Chairperson (not the sponsor) of your committee, following guidelines provided by the graduate school, and usually lasts at least 2 hours. You should discuss the format of your defense with your chair in advance. Normally, students present an overview of their thesis research, but it is typically brief (10-15 minutes), and serves mainly to focus everyone's attention and to relax the student. The rest of the defense typically involves the committee members asking questions about the research and about the thesis. The student is normally asked to step out of the room twice during the proceedings: at the beginning, as the committee discusses the format of the defense and any other organizational matters, and at the end, when the committee makes its collective judgment. Be aware that it is normal for the student to have additional revisions to make before filing – but these can be major or minor. The committee will decide whether parts or the entire thesis need to be seen again by any or all of its members before filing.

A copy of the dissertation, spiral bound, must be presented to the department at the same time that the deposit card is presented for the Chair's signature and the dissertation is deposited in the Dissertation Office.

#### **Public Presentation of Dissertation Research**

All students are required to prepare and present a full length seminar to the department. This seminar will take place around the time of dissertation defense (ideally just after the defense), but not before a student has submitted the defendable dissertation to the committee. You should schedule the seminar no later than the time you schedule the defense – earlier is better, if you can be reasonably sure of your dates. Keep in mind that the end of the academic year is often congested for scheduling.

#### **XIV. PROGRESS REPORTS/ACADEMIC REVIEW**

Once a year, normally in late April, students will be reminded by the ADA to update their progress on FileMaker. NOTE: this is in addition to and separate from the progress report required by GSAS. Students and advisors must complete both reports. Advisors are asked to look over the entries and make comments as well. The purpose of the report is to keep our records up-to-date on your coursework, committee membership, research planning and progress, internships, funding, etc. This information allows the faculty to assess a student's progress at regular intervals, and to intervene for both the students' and the graduate programs' benefit when conflicts or problems arise.

The url for the FileMaker site is: [http://morgan.cerc.columbia.edu:81/fmi/iwp/res/iwp\\_home.html](http://morgan.cerc.columbia.edu:81/fmi/iwp/res/iwp_home.html)

Once a year, in May, the faculty collectively reviews each student's progress. Students receive a letter from the chair or the DGS; research sponsors receive a copy of the letter.

#### **QUESTIONS About the Program**

For questions about the academic part of the program, start with the DGS. For NYCEP-specific questions, consult the CU-NYCEP rep (Marina Cords). For administrative questions, see the ADA.

## **SUMMARY OF GRADUATE DEGREES: M.A., M. Phil., and Ph.D.**

The sequential M.A. degree is awarded to Ph.D. students who have completed one full year in the program.

The M. Phil. degree is awarded upon successful completion of all the Ph.D. requirements other than the preparation and defense of the dissertation. To remain in good standing, the student should complete this degree by the end of the fourth year of study (and is usually completed at the end of the third year), except for those students granted advanced standing, who must complete the degree by the end of the third year (and usually by the end of the second year) of study. Students who do not complete the degree in the usual time frame may suffer financial penalties (see Funding, above). Six units of residency and 40 E credits approved by the DGS and the student's advisory committee are required for this degree.

The Ph.D. degree is earned after the defense and final deposition of the dissertation. The written dissertation is first submitted to the student's sponsor and other readers as recommended. After revisions, the dissertation is submitted to the full five-member dissertation committee, and the student defends the dissertation orally. Students are responsible for scheduling a departmental seminar around the time of their defense: the seminar can occur either before or after the actual defense, but not before the defense copy of the dissertation has been submitted to the committee. As requests for seminar slots tend to pile up around degree deadlines, it is advisable to think ahead, especially for dates in late April.

## ENVIRONMENTAL POLICY CERTIFICATE

**Inquiries should be directed to the Environmental Policy Certificate Advisor, Steve Cohen, [sc32@columbia.edu](mailto:sc32@columbia.edu).** Completing these requirements means you get an actual New York State-approved certificate degree. *Please do think relatively early in your tenure about fitting these courses into your plans (and perhaps focus on them even more quickly if you have Advanced Standing).*

**Important Amendment:** As of Fall 2009, the EPC has been amended to accommodate the needs and concerns of our Ph.D. students. Until now, the 24-point certificate program has been a mandatory requirement for all Ph.D. students. In effort to afford our students a more effective and efficient option, Ph.D. students may now opt to complete a shorter 12-point policy program. Ph.D. students that opt to take the alternative 12-point policy program will **not** receive the policy certificate. Please note that if you are a Ph.D. student with a strong interest in policy-related work, the E3B faculty strongly recommends that you obtain the certificate.

**General:** The EPC requires at least two residence units (part of the 6 required for the Ph.D) and 24-points (separate from the 40-points required for the Ph.D.). With approval by the Certificate Advisor, up to 6 points of advanced standing credit for similar courses taken at another university may be accepted towards the 24 points (and can fulfill the “area” requirements, but not the workshop requirement (see below).

**Course Requirements** (*areas established so that students are exposed to a certain set of conceptual approaches*)

1. One course is required in the area **Environmental Politics/Policy** (consult this area’s courses list)
2. One course is required in the area **Environmental Law** (consult this area’s courses list)
3. One course is required in the area **Environmental Economics** (consult this area’s courses list)
4. One course is required in the areas **Anthropology** or **Public Health** (consult this area’s courses list)
5. **Workshop in Environmental Policy** (*3 points, but 6 points with the additional, linked Directed Reading course*) Students may enroll in the SIPA U8905 workshop course or in similar workshop courses developed by E3B (such as G6130),. In either case, a linked Directed Reading will be offered (with the EPCA, if you take U8905, or with the E3B course instructor), which like the workshops will earn 3 points.

If in some years the topic of U8905 does not work for E3B students, and a course like G6130 is not offered by the department that year, then it is possible that another substitute for U8905 would be designated for that year (but, if that’s a 3-point course, then another elective will be necessary to reach 24 points). Students who do not complete all the requirements for the Policy Workshop in the semester it’s offered (including those for the linked Directed Readings course) must resolve their ‘Incomplete’ by the end of the following summer.

6. Two elective courses are required in any area (*see the electives courses list and all of the areas’ courses lists*).

**NOTE:** an eighth course (i.e., third elective) will be necessary under the last workshop scenario (see above).

**NOTE:** an internship can substitute for an elective course (but the same work cannot double count both as a policy internship and as directed research work) (you can do multiple internships, even breaking up one experience into parts; sign up for Directed Research and fill out an Internship form for each one). An internship proposal for each course must be signed in advance of initiation (although this is simply setting up an acceptable contract; the work must be done to get credit).

Additionally, spending time working in some capacity for a policy-oriented institution or project is **not** sufficient. At least one of two types of content is required. The first is analogous to any directed research course: a student must cover selected literature to acquire a set of knowledge or a technique, and then perform an analysis or evaluation in which knowledge, approach or technique is applied.

The second type is harder to define. Its inclusion is an attempt to recognize that policy is neither your Ph.D. area nor an academic area. Thus, different standards apply. The content required is learning about how a given policy process works, i.e. knowledge which would make it easier for you to effectively inject insights from your academic work into actual policy process. Finally, “policy relevant” research that is not part of your thesis does not automatically qualify for either of these. However, if your research does not qualify, it may fit within the client-team framework, e.g. in the G6130 course.

### **Specific Courses Approved for Area and/or Elective Requirements**

*(See the notes below, and on the following page for lists)*

- Please do suggest policy-relevant courses from any area, including: Anthropology, Business, E3B, Economics, History, Journalism, Law, Political Science, and Public Policy. Courses are evaluated in consultation with faculty in that area. To this point, the majority of the courses suggested have been approved for credit.
- All 'Area' courses can also be used to meet the electives requirement, but 'Elective' courses cannot fulfill area requirements. The same course cannot be used to fulfill both an area and an elective requirement.
- Courses below the 4000 level can't be taken for graduate credit, and thus can't be used for this Certificate.
- U4731 Proposal Writing in Environmental Policy does not count but may be useful for writing or funding.
- U4733 Environmental Policy Practicum (1 point) counts only if you take a qualifying 2-point course (e.g., in Law) and need a point. There may also be qualifying 4-point courses (e.g., in Law) to make a point up.

### **Credit for Courses Taken Previously**

If students have taken appropriate graduate-level policy courses at other institutions (or previously at CU), they may be able to reduce the number of courses required for the EPC by up to 6 credits. In every case, the EPCA must approve any such substitutions, after review of the course syllabi and content, and you are encouraged to solicit such approval as early as possible.

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There are a few students who have moved from our own M.A. program to the Ph.D. program. These students may have taken course that would satisfy the Ph.D. policy requirement while they were still in the M.A. program. Such courses can be counted toward the Ph.D. requirements, and thus they may reduce the load of policy courses needed to complete the EPC. Again, such ‘substitutions’ should be discussed explicitly with the EPCA and DGS, early in your academic planning.

In even rarer cases, a student may qualify BOTH for credits for graduate-level policy courses from another institution (up to 6 credits) AND for policy courses taken while doing the Conservation Biology M.A. at Columbia. Such a student can get credit both for the CU courses and for up to 6 credit-hours at another institution.

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**Acceptable Progress in the EPC courses**

For core policy courses, including the workshop, students receiving less than a "B-" are required to take a written exam or do a supplementary project by the end of the following summer. The instructor for the course in question would have to decide what additional work the student undertakes and will assign a final grade for this additional work. If the instructor does not wish to accept the additional work, you will have to take another course to satisfy the requirement. Students must earn a passing grade on the exam or project to claim successful completion of the core course requirement.

For elective policy courses, the minimal acceptable grade is also a B-. If a student does not achieve this grade, s/he has the option of taking a different course and counting that for the elective, assuming the grade is at least a B-.

**AREAS/SAMPLE COURSES**

Dept.

**Environmental Politics and Policy:**

U6243 International Relations of the Environment SIPA

**Environmental Law:**

L6040 International Environmental Law [2]	Law
L6242 Environmental Law [4]	Law
L6272 Land-Use Controls [3]	Law
L6668 Collaborative Decision-making Project [2]	Law
L8036 Sem: The Protection of Natural Resources [2]	Law
L9056 Sem: Hazardous Waste Law	Law
L9315 Sem: Land Use Regulation and Development [2]	Law
L9379 Sem: International Environmental Law	Law
L9155 Sem: Environmental Litigation [2]	Law
L9038 Sem: Public Lands and Natural Resources	Law
L9050 Sem: Toxics and Society [2]	Law

**Environmental Economics:**

W4329 Economics of Sustainable Development	Econ
W4625 Economics of the Environment (natural resource classes, e.g. G6450, require pre-approval)	Econ

**Cultural Anthropology or Public Health:**

G4124 People and Their Environment	Anth
G6400 Amazonia Seminar (pending syllabus)	E3B
S4420Q Culture, Tourism and Development	Anth

U6245	Issues in Development	Anth
W4086	Ethnobotany	E3B
W4236	Ecological Studies in Anthropology	Anth
W4640	Indigenous Peoples and States	Anth

**Electives**

U6016	Cost-Benefit Analysis	SIPA
U6238	Environmental Finance	SIPA
U6241	Environmental Politics, Policy and Management	SIPA
U6246	Policy Analysis of Development	SIPA
U8152	Urban Economic Development and the Environment	SIPA
U8830	International Land Resource Management	SIPA
U8907	International Environmental Institutions	SIPA
W4209	Game Theory & Political Theory	Poli
W4415	Game Theory	Econ
CUNY	Issues in African Conservation	Biol

*Students are encouraged to suggest a wide range of courses that would be of interest.*

## ENVIRONMENTAL POLICY CERTIFICATE INTERNSHIP FORM

**Inquiries should be directed to the EPCA, Steve Cohen, [sc32@columbia.edu](mailto:sc32@columbia.edu)** When presenting the form to the EPCA for approval, include a printed out copy of your transcript to show that you have taken all of the required coursework for the EPC.

As mentioned above, you must register for **Directed Research** (EEEEB 9501/9502) to receive academic credit for a policy internship, and please indicate to the ADA that this particular Directed Research is for a policy (not a biology) internship. For each “class” (3 points) of internship, you must do a separate Directed Research and Internship Form; thus, for a single big (e.g., 2 class/6-point) project, you must show two components each worth a full class.

Given the flexibility in the ‘Elective Course’ requirement (see the certificate requirements list above), this form will standardize the demonstration of either of the types of content discussed above. The idea is to substitute, with equivalent alternative learning, for a course. Learning can be about ‘*a socioeconomic perspective*’ and/or ‘*an institutional/implementational reality*’. It will not be sufficient, though, to simply learn a set of facts about a given situation. We want you to acquire an analytical tool, or an understanding of a particular policy process.

**For either type of internship elective, you must provide a one-page response clearly addressing the following questions.**

**I) “Directed Research” Type** – the internship sponsor should answer all of the following questions and sign/e-mail the answers to the EPCA. Here the sponsor is most likely to be an adjunct faculty member with an advanced degree.

a) What perspectives on conservation policy will be learned (e.g., in an area of anthropology)?

Please be specific – e.g. exactly what analytical perspective within what discipline/area?

b) How will this perspective be acquired (e.g., weekly discussions, or list of assigned readings)?

c) How will the learning of this perspective be tested? e.g. exams? If not, then at least a paper.

**II) “Institutional” Type** – the internship sponsor(s) should answer all of the following and sign/Email the answers to the EPCA. Here the sponsor is most likely to be the relevant member of the policy institution’s staff.

a) What conservation-policy institutions’ processes will be learned? Please be specific – e.g. exactly what policies and within what policy processes/institutions?

b) How will knowledge of these processes be acquired (e.g., weekly interactions, project work)?

c) How will learning these policy processes be tested? Again, if no substitute, at least a paper, e.g., has the student’s learning/efforts entered into the actual policy/action-setting process?

## **The Conference/Research Financial Assistance Package for Ph.D. Students**

Pending availability (see Appendix 2 for a recent update), funds are available to Ph.D. students for the following:

**1)** A maximum of \$300.00 in travel funds per conference (approved by the DGS) to cover travel expenses, lodging and registration fees. Only one conference is permitted per *academic* year (July to June). Funds will be provided for up to two conferences without presentations. To obtain funding for more than two conferences, presentations are required. To receive reimbursement from conferences where presentation is required, you need to provide proof that you presented (e.g. an abstract or program page). If this information is on a website, you may submit a printout. Without appropriate documentation, the forms for reimbursement will not be processed. Any unused funds cannot be accrued or used for another year, nor diverted to another purpose.

Payments to students are in the form of reimbursements after you return from the conference. To receive your reimbursement for any conference you attend (whether you are presenting or not), you will need to fill out a Travel & Business Expense report (which you can obtain from the administrative assistant), and include all your original receipts. If you paid for anything with a credit card, you will also need to submit a credit card statement showing the expense(s) in question. Detailed instructions on T&BE reports are provided below.

GSAS provides additional conference travel funds for M. Phil. students. Further information can found at: <http://www.columbia.edu/cu/gsas/travelgrants>.

**2)** up to \$500.00 per biology internship project (unless the internship itself is paid), for a maximum total of \$1000.00 over the course of two such projects. This payment will be made directly to the faculty member sponsoring the internship, or to his/her institution, upon receipt of bills that are directly associated with the work. It will be possible to accrue unused funds from one internship for use in a subsequent one, but internship money will not be transferable for any other purpose. The sponsoring faculty member or student needs to fill out a Check Request for the issuance of a check to cover legitimate expenses. If your supervisor is at Columbia, a T&BE report should be submitted instead of a Check Request. The T&BE is to be signed by the advisor. If any supplies or equipment are to be ordered through Columbia, please speak to the ADA beforehand. Note that any non-expendable items (such as equipment) purchased with these funds become the property of the E3B department.

Detailed instructions regarding forms are provided below.

**3)** up to \$2,500.00 for one field trip as a feasibility study to plan one's dissertation research. To apply for this fund, you will need to submit a written application, specifying the work you will undertake, how the work relates to your developing dissertation project and why this work is preliminary, and providing a detailed and justified budget. The application for the funds is to be submitted in early spring (exact date will be announced by the ADA) for summer research. Under no circumstances will these funds be released to students who have already commenced dissertation research: these funds are for planning that research, not for executing it! In the same spirit, funds will not be paid for equipment (this should come out of research grants).

For this expense, it is possible to request a Travel Advance. Please submit the travel advance request to the ADA at least 2 weeks in advance (and more if it is near closing of the fiscal year), and be sure you are informed about what kinds of expenses are allowed. After your trip, a Travel and Business Expense report

must be made, along with supporting documentation (original receipts!) for how the advance was spent. It is essential that you keep meticulous and accurate records, along with original receipts, and that you turn these in within 2 weeks of your return. Again, detailed instructions are provided below.

Some **general words of advice** regarding financial transactions:

- Advance planning is critical: inform yourself in advance about the kinds of expenses that can be covered, and how to process the paperwork to get a reimbursement, or to account for an advance. The ADA or 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, may not receive any future advances, or may be obliged to return the money that was advanced to you), 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. During the Summer, please submit any requests for advances at least 3 weeks **before the end of the fiscal year** (June 30). If you are seeking reimbursement for conference attendance or internship expenses, and the costs were incurred before June 10, be sure to submit your forms for reimbursement or checks by June 10 latest or you will probably not receive the reimbursement.
- Always keep all your original receipts. They are essential.

**NOTE: See Appendix 3 for detailed instructions on submitting forms**

## GRANTS & AWARDS

(See also “Grant Proposals” in GENERAL ACADEMIC INFORMATION)

Applying for grants is important for your career. The more you apply, the more you are likely to receive. The more you have received, the easier it will be to receive additional grants.

Departmental and GSAS budgets assume that some fraction of students will receive outside funding, and therefore students are expected both by GSAS and by the department to apply for funding to support their education (tuition, etc.) as well as their research. A “BONUS” to one’s stipend may be added if significant outside funding for stipends is obtained. (However, no bonus is given for NSF awards, as the stipend (\$30,000 in 2009 -2010) is so much higher than any other stipend already.)

In this context, it is important to understand the difference between outside- and inside-CU support.

**Outside funds** are those where the decision of who gets the funding is made outside the university – this kind of funding would include NSF Graduate Fellowships or EPA Star awards.

**Inside funds** are administered within Columbia – these would include various fellowships and awards that GSAS controls, as well as things like the GK-12 teaching fellowships that some CU science departments control.

The money for the inside awards may ultimately come from elsewhere (e.g. NSF or other foundations) – but what matters is where the decision among applicants is made. Inside awards generally cannot be used to cover the unfunded year. If you receive significant outside funding, however, it may be possible to ‘delay’ departmental funding you would have otherwise used, and such an arrangement may effectively allow funding of the unfunded year. You should realize that any such arrangement needs to be discussed well in advance (ideally at the time you apply and again as you receive the award), and whether it will be feasible depends on the fiscal constraints facing the department at the time. Any such arrangements will be recorded in writing (e.g. email).

Below are some possible resources you should explore. **EVERYONE WHO QUALIFIES SHOULD APPLY FOR AN NSF GRADUATE FELLOWSHIP.** This list is not comprehensive.

- SPONSORED PROJECTS ADMINISTRATION, COLUMBIA UNIVERSITY

[www.spa.columbia.edu](http://www.spa.columbia.edu)

**Synopsis:** The Sponsored Projects Administration Office (SPA, formerly RA or Research Administration) offers a list of granting agencies and search engines for additional funding opportunities. In addition, SPA handles administrative aspects of research grants. Students applying for a research grant must always do so through SPA and follow the specifications of SPA detailed in the above website.

- NSF Graduate Research Fellowships (NSF 01-146) <http://www.ehr.nsf.gov/DGE/programs/grf/>

**Synopsis:** The National Science Foundation (NSF), to ensure the “vitality of the human resource base of science, mathematics, and engineering in the United States and to reinforce its diversity” offers approximately 900 graduate fellowships each year, including awards for women in engineering and computer and information science. Fellowships provide three years of support for graduate study leading to research-based master’s or doctoral degrees in the fields of science, mathematics, and engineering supported by the NSF and are intended for students in the early stages of their graduate study (either first or second year students, see the guidelines for more details). A 12- month stipend of \$30,000 (2009-10), will be paid as will a \$10,500 cost of education allowance. The fellowship also provides a one-time travel

grant for fellows who need to do research abroad for at least three continuous months. Additionally, NSF will consider further support for foreign travel and subsistence for fellows who will conduct research with a host country investigator. **ALL STUDENTS WHO QUALIFY ARE EXPECTED TO APPLY FOR THESE FELLOWSHIPS, MORE THAN ONCE IF POSSIBLE.** (You can apply in both your first and second years of graduate school in most cases.) Students who receive NSF graduate fellowships may use one year to support themselves in the unfunded fifth (no advanced standing) year.

**Deadline:** early November

- EPA Star Award <http://es.epa.gov/ncer/rfa/>

**Synopsis:** The Science to Achieve Results (STAR) Program has four formal solicitation periods during the year -- January, April, August, and October. Check the website for a partial listing of upcoming topics. STAR Requests for Applications invite research proposals from academic and non-profit institutions located in the U.S., and state and local governments. All forms necessary for completing an application are noted in the announcement and are available on their site.

The fellowship provides up to \$37,000 per year of support. Up to \$111,000 (three years) will be provided to doctoral students. The \$37,000 annual support covers stipend, tuition, and expenses (outlined on the web site).

**Deadlines:** January, April, August, and October

NSF 00-95 DOCTORAL DISSERTATION IMPROVEMENT GRANTS IN THE DIRECTORATE FOR BIOLOGICAL SCIENCES <http://www.nsf.gov/pubs/2000/nsf0095/nsf0095.htm>

**Synopsis:** The National Science Foundation awards Doctoral Dissertation Improvement Grants in selected areas of the biological sciences. These grants provide partial support of doctoral dissertation research to improve the overall quality of the research, to allow doctoral candidates to conduct research in specialized facilities or field settings away from the home campus, and to provide opportunities for greater diversity in collecting and creativity in analyzing data than would otherwise be possible using only locally available resources. Approximately \$750,000 per year is currently spent on doctoral dissertation improvement awards and this is expected to remain constant. Proposals whose focus falls within the scope of the Ecology, Ecosystems, Systematics, or Population Biology programs in the Division of Environmental Biology (DEB), or the Animal Behavior or Ecological and Evolutionary Physiology programs in the Division of Integrative Biology and Neuroscience (IBN) are eligible. Please note that DEB programs generally do not support research in marine ecology. The duration and grant amount are flexible but must be justified by the scope of work and documented in the proposal. Grants are typically awarded for 24 months and for amounts that range from \$3,000 to \$10,000

**Deadline:** Third Friday in November

- Environmental Research and Education Foundation <http://www.erefndn.org/scholar.html>

**Synopsis:** The environmental research and education foundation (EREF) supports Ph.D. students interested in environmental research. The amount of the scholarship depends on the cost of tuition and whether tuition is covered by other sources. \$12,000/year/up to three years

**Deadline:** July 31

- Grants for neotropical field biologists and conservationists <http://wildlife.wisc.edu/simbiota/s-list.htm>

## **APPENDIX 1:**

### **E3B GRADUATE STUDENT TEACHING GUIDELINES**

#### **Requirements**

In fulfillment of the requirements for the Ph.D. degree, all E3B students must gain teaching experience as part of their graduate training. It is hoped that this experience not only serves as a foundation for graduate students who go on to careers in teaching but is also of value in preparing students to make effective oral presentations at professional meetings, seminars, and colloquia. Moreover, learning to give clear explanations and to answer questions in introductory courses contributes substantially to a graduate student's understanding of fundamental concepts in the field.

To "teach" means to lead a laboratory or recitation section or to assist in teaching a lecture course. Students are expected to start teaching in their second year and generally complete their teaching by the end of their third year, before advancing to candidacy. Students with sufficient experience and maturity are allowed to start teaching in the second term of the first year. All TAs must be in good academic standing and registered (for residence or extended residence) during the semester in which they teach.

#### **Teaching Assignments**

Teaching assignments are made by the ADA in conjunction with the Chair and the Director of Graduate Studies. Students may submit their preferences for TA-ing particular courses, and efforts will be made to match the TA to the course s/he desires. Forms will be sent out to students by the ADA in early spring of each year requesting preferences. However, a perfect match is not always possible. In making Teaching Assistant assignments, we take into account student and faculty preferences, special skills, and previous assignments, in the context of the needs of the student's educational program and the department's instructional program. The number of TAs assigned to each course is based on anticipated enrollment together with the demands of the course and the teaching style of the instructor.

#### **Responsibilities**

All teaching is overseen by a faculty member. Duties of teaching assistants vary, depending on the course, and may include:

- Attending lectures and doing assigned readings
- Meeting with the professor
- Setting up electronic classrooms and laboratories
- Preparation of instructional aids and web pages
- Aiding in the preparation of exams
- Grading exams and papers
- Holding office hours for students
- Conducting review sections
- Leading discussion or lab sections
- Offering guest lectures

Each graduate student is required to teach the equivalent of 2 to 4 semesters in total. The variance in this number is a function of the availability of TAs, the courses taught (some require greater commitments than others), and in some occasions, the previous teaching experience of the student. The department

strives for equity across students in teaching duties over their entire studentships. Teaching Assistants should expect to devote 15-20 hours per week to their teaching-related duties.

### **Training**

1. A seminar, conducted by GSAS, will be held at the beginning of the year for all students who are doing their first teaching assignment. Attendance is mandatory. At the seminar various aspects of graduate student teaching will be discussed and suggestions made for improving teaching and learning (both for the benefit of the TAs and the undergraduate students).
2. The department may hold additional TA training sessions. The major purpose of these sessions is to discuss departmental support to, and duties required of, the student TAs. We also try to provide TAs with resources for solving problems that may arise.
3. There are no other department wide sessions throughout the semester, but TAs for all classes should meet regularly with instructors to discuss the material and ways to present it.
4. Teaching Assistants must be proficient in English or pass the International Teaching Fellows Course offered by the American Language Program.

### **Evaluation**

Course evaluations are given out in every course at the end of every semester. They include an extensive section for evaluating the TA. Some instructors conduct additional surveys and/or discussion sessions with their TA to obtain more information. The results of all surveys and/or evaluations are given to the TA.

A questionnaire is filled out by each faculty member evaluating the TA at the end of the semester. This information becomes part of the student's file.

TAs will be asked to evaluate the departmental TA-training seminar, so that it remains responsive to their needs.

### **Grievance Procedure**

In the event that a TA believes that he or she is being treated unfairly, he or she should bring the grievance to the attention of the Director of Graduate Studies or the Chair. Should the grievance not be resolved at this level, it may be brought to the Assistant Dean for Graduate Teaching at GSAS.

## Appendix 2

### Update on Funds for Conference Travel and Research

2010-11

There are limited funds available for student travel to conferences (M.A. and Ph.D. students), for preliminary doctoral research, and for Ph.D. internship supplies through departmental funds.

It is anticipated that travel funds will be available in the 2010-11 academic year. However, increases in the number of students applying may exhaust funds earlier than expected. Therefore, it is advantageous to apply early in the year. There will be a deadline for the last applications for travel funds, usually set in April. The ADA will send out an announcement in spring semester regarding the exact date.

Ph.D. students planning preliminary research in the summer may have to plan for reimbursement in Fall following their travel. This would occur only if the demand in a given year for funds is unexpectedly high, so that we must and are able to roll these disbursements into the next year's budget. We do expect that funds to support these activities will continue to be available.

As always, finding outside funding is a great idea, and we encourage you to look actively for such support. If you would like to use funds, we will ask you to submit a proposal. If you can do this by mid-May, you will have a better chance of receiving funding. However, you might also receive funding if you submit a proposal later -- that will depend on how many people have proposals ready and when, and thus how much of any available money is 'spoken for'.

Your proposal should make it clear whether you are seeking funding for preliminary research, conference attendance, or likely internship expenses (be aware that the latter are paid to the intern supervisor, not directly to you). For preliminary research funding, the proposal should explain what the research project is (where, how long, what the goals are, how it relates to your dissertation work), whether it has been approved by your committee (please list members' names), and it should include a reasonably detailed budget justification. **\*There is a cover page that should be attached to your proposal for preliminary research funds.\* Please download the form from the E3B website here:** [http://www.columbia.edu/cu/e3b/resources\\_forms.html](http://www.columbia.edu/cu/e3b/resources_forms.html). Please keep in mind our instructions about preliminary research funds (reprinted for your convenience below) from Dec 22, 2003.

There are no similarly detailed instructions for the conference travel or internship funds, so keep the following in mind. For conference travel, let us know when and where the conference is located and whether you will be presenting (poster or oral) at the conference. For internships, describe the general internship activity, let us know what kinds of supplies the funding would support, and what the total cost would be.

We will review the proposals before the summer, and may at that time be able to say something about proposals that definitely cannot be funded. A proposal might not be fundable if it doesn't fit within the funding guidelines. That could mean that the items being funded are inappropriate or poorly justified, or that the work is not really preliminary. A proposal might also be unfundable because there are too many other proposals with higher priority: while we hope our budget will be approved with a funding level that is adequate for all legitimate requests, it can happen that there are more proposals than funds in any given year. Such mismatches happen because students do not always ask for funding at the same time in their careers, while our budgets assume an average number of students requesting funding in any given year. We will recognize some priorities, all else being equal: for preliminary research expenses, we will give

more senior students an edge. For conference travel, we will favor students who are presenting their own research. These priorities, together with a sense of what the 'demand' for funding will be, should allow us to put the proposals in one of two groups: (1) proposals that will almost certainly not be funded this year, and (2) proposals that have a reasonable chance of funding, pending budgetary approval. While having your proposal fall into group (1) would surely be disappointing news, a definite 'no' is still useful for planning, as you know with certainty that you'll need to find alternative sources.

We strongly encourage everyone, even those with proposals in Category 2, to look for alternative sources to fund research (both preliminary and internship-related) and conference travel. Applying for grants certainly increases your chance of receiving them, and showing success in raising funds is an important addition to your developing record as a scientist. Further, as per instructions of December 22, 2003 (see item 5), it is an advantage to you in securing departmental funding if that funding matches outside funds.

Please submit your proposals to the ADA by the announced date.

## Appendix 3

### Detailed Instructions for Travel Reimbursement

#### A. Travel & Business Expense Report (T&BE Report)

Columbia has specific rules for filing T&BE reports to ensure compliance with the IRS. For timely reimbursement, you must review and adhere to these rules. **T&BE reports are audited by Columbia's Internal Audit department and the IRS.**

A T&BE report must be completed by a fellow as soon as s/he returns from a University trip. The form must be signed by the traveler as well as by the ADA. Per diem can be paid only if stipulated in a grant or contract.

Original receipts must be submitted with all T&BE reports. Receipts must be taped to an 8x11 white sheet of paper in order by date. Write your name and social security number at the top of each sheet. Number receipts (on the side) in the same order you listed expenses in the "Expense No." column of "Description of Expenses" on the T&BE. Tape the receipts in numerical order according to the Expense No. When only part of the receipt is accounted for (instead of the whole receipt), circle the value.

**If you are requesting reimbursement from another institution and need to submit forms to Columbia or the other institution, please discuss this with the ADA well in advance of submission.**

#### Please remember:

- Save a copy of the flyer or registration for a conference to be included with the T&BE report.
- Reimbursable amount for car travel is updated annually on AP website. Check the current rate.
- Meal expenses reimbursed by government funds may not exceed \$50/day. Meal expenses supported by other gifts or grants may not exceed \$75/day per traveler. Federal regulations require that expenses that exceed \$15 breakfast, \$25 lunch, and \$40 dinner, be segregated. These expenses would be listed in the segregated column. Reimbursements cannot be guaranteed for meals in excess of the limits set.
- Any alcoholic beverages on the T&BE report must be segregated.
- Any fundraising activities/development activities must be segregated.
- All travel must be at the lowest available commercial rate.
- The reimbursable lodging expense has a maximum limit of \$300/night.

#### Students purchasing equipment/items in international countries must remember to:

- Calculate currency conversions from OANDA.COM. (Website used by Accounts Payable.)
- Save the EXACT date of the each purchase.
- Conversion must be for the EXACT & TOTAL DOLLAR AMOUNT; A/P **will not** do the conversion

## FORM

- 1) Fill-in SS#, Your Name, Date of Last Expense (date of last receipt), your address, Date Trip Began/Ended, Date of Earliest Expense (date of first receipt), Departure & Arrival Points, Currency Exchange Rate
- 2) Overall Purpose: write “Pre-Dissertation Fieldwork:” and a brief description, OR “Year 1, 2, etc. Conference with/without Presentation” and the title of the conference. If it’s for Directed Research with a E3B faculty, write “Directed Research (1st, 2nd, or 3rd) with Dr. XXXXXXX”, title of project, and any other necessary description
- 3) Payee’s Signature: Sign your name and date (Month/Day/Year)
- 4) Fill in Description of Expenses according to the instructions on the back of the T&E. (See the T&E example)
- 5) Fill in Total Expenses
- 6) Less Prepaid Expense: If the total is \$350 (more than what you are allotted for) and you are only getting \$300 for a conference, write the \$50 difference here.
- 7) Subtotal: Total Expense minus any Less Prepaid Expenses (i.e. \$300)
- 8) Less Travel Advance: Enter the amount of your travel advance (i.e. \$300)
- 9) Amount Due University: If you were given a travel advance and the entire amount I accounted for, then you can put \$0. If there is any money remaining, write the amount that you will be returning to the University.
- 10) Amount Due Traveler: If you did not request a travel advance, write the total amount of the expenses here, up to the maximum amount allowed.
- 11) Leave everything else blank.

### B. Travel Advances

- Travel advances of \$100 per week, up to a maximum of \$300, may be obtained for domestic business trips of more than two weeks.
- International travel advances may be obtained for the entire field trip. However, please remember that a T&BE report must be filled out upon the traveler’s return and the **original** receipts must be submitted with the T&BE report. **If you are going to another country and you think you will not be able to obtain receipts, you must speak to ADA beforehand.** The traveler will need to keep track of all expenses while s/he is away and keep receipts in chronological order. It is recommended that the student takes T&BE reports along on the trip, so that they can be completed weekly to keep track of expenses and receipts.
- **Any unused funds, or those that cannot be properly accounted for, need to be returned to the university. Any irregularities in this regard can seriously affect your account.**

### Form

- 
1. Fill-in your SS#, Date (Month/Day/Year), payee: *your name*, your address, travel dates, destination and itinerary
  2. Purpose: write “Pre-Dissertation Fieldwork:” and a brief description, OR “Year 1, 2, etc. Conference with/without Presentation” and the title of the conference.
  3. Amount: depending on what it is for (see above)
  4. Traveler’s Signature: sign your name
  5. Date: Month/Day/Year
  6. Traveler’s Name: print your name
  7. Title: write “Ph.D. Fellow”
  8. Leave everything else blank

### **C. Check Request Form**

1. Date (Month/Day/Year)
2. Payee: Institution (i.e. American Museum of Natural History) – also write “Attn: *your Directed Research supervisor’s name*”
3. Address: Institution
4. Tax Identification Number: Institution
5. Description of Service: write “Directed Research (1st, 2nd, or 3rd) with Dr. \_\_\_\_\_”, title of project, and any other necessary description.
6. If the check is to be mailed, provide a self-addressed envelope.
7. Amount: up to \$500
8. Leave everything else blank.

### **Further clarification for complying with policies**

#### **Travel Advance**

All receipts for travel advances **MUST** be submitted to the department within two weeks of the return from your trip. (Note that 'return from your trip' means the time you return to New York from your travels. Even if your plane touches down in New York, and you immediately continue on to visit your family, or attend a conference, or anything else, the return date is when you first landed in NYC. This is a university policy.)

The receipts must be presented in the format set forth in the Student Handbook. These are regulations mandated by the University's Accounting department. We have to submit the travel and business expense forms along with supporting documents in the correct format no later than four weeks from the last day of trip. For E3B to ensure the timely submission to Accounts Payable, we need you to get all documentation to us within the two week period after your return. This policy holds for faculty as well students.

**While we are hopeful that there will not be a need to implement this consequence, students who don't adhere to the deadline will have the amount of the travel advance deducted from the subsequent stipend check and the amount of the advance will effectively be lost to the student. This decision was arrived at after much discussion. We are confident that with everyone's cooperation, this will never need to occur**

#### **Conference Reimbursement**

Students who anticipate requesting conference travel reimbursement must notify the ADA at the time they register for the conference, giving the conference name, the student's expected participation level (just attending, poster, oral presentation) and anticipated dates of travel (or conference dates). All receipts for conference travel reimbursements **MUST** be submitted to the department within two weeks of the return from your trip (see section above to see what counts as 'returning'). The receipts must be presented in the format set forth in the Student Handbook and in a new handout information sheet that will be distributed to all students and faculty. As with the Travel Advances, these deadlines will allow us to comply with regulations that are mandated by Accounts Payable.

Again, to ensure compliance with these policies, any travel and business expense form submitted after the two week grace period will not be processed. Students who have not registered their intent to attend a conference in advance risk not receiving reimbursement. In turn, we will endeavor to see that all reimbursements are processed in a timely fashion so that you will receive any money due for conference travel as quickly as possible. Having anyone wait for weeks or months to get reimbursed is not acceptable. If your reimbursement is unacceptably delayed, please contact the ADA.

While these new deadlines give you a little less time to organize your receipts and accounting, and the consequences of not doing so may seem harsh, in the long run these measures will ensure that everyone is reimbursed quickly and that the funds budgeted for pre-dissertation, conference travel, and internships will be available for the fiscal year in question. Having these funds is a privilege, and (we think) well worth working for.

In the meantime, if you have any questions or need help in correctly completing your T&BE reports, see the Handbook, check the Controller's website, or stop by the E3B office.

## Appendix 4: Application for Pre-dissertation Research Travel Funds

### COVER PAGE

**Background:** Pending the availability of funds, Ph.D. students in their first 2 years can apply for up to \$2,500.00 for one field trip that may serve as a feasibility study to plan one's dissertation research.

**Under no circumstances will these funds be released to students who have already commenced dissertation research:** these funds are for planning that research, not for executing it! In the same spirit, funds will not be paid for equipment (this should come out of research grants).

**Note:** For this expense, it is possible to request a Travel Advance. Please submit the forms to the ADA at least 2 weeks in advance (and more if it is near closing of the fiscal year), and be sure you are informed about what kinds of expenses are allowed. After your trip, a Travel and Business Expense report must be made, along with supporting documentation (original receipts!) for how the advance was spent. It is essential that you keep meticulous and accurate records, along with original receipts, and that you turn these in within 2 weeks of your return.

**Deadline for submission:** \_\_\_\_\_

**Earliest expected release dates for funds if approved** \_\_\_\_\_

**Please submit cover page to the Academic Department Administrator, but submit the proposal itself electronically.**

**Proposal Title:** \_\_\_\_\_

Committee's Signatures indicating that the following proposal has been read, approved, and is in accordance with the policy that requested funds will be for preliminary research travel, not for dissertation research already commenced.

**Advisor:** \_\_\_\_\_

**Committee member:** \_\_\_\_\_

**Committee member:** \_\_\_\_\_

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**PLEASE DO NOT WRITE IN THIS SPACE**

Reviewer comments:

Recommended funding:

Funds to be allocated:

Proposal Text (no more than 4 pages, 12 pt font, single spaced).

Please specify:

1. the work you will undertake
2. how the work relates to your developing dissertation project
3. why this work is preliminary
4. provide a detailed and justified budget.

---

**NOTE: If a form/request is incomplete or is not filled-out appropriately, it will be returned to you to be corrected. This can delay processing.**

## Appendix 5: E3B Computing Essentials

### 1. **Columbia University Information Technology** (<http://www.columbia.edu/cuit/>)

CUIT is your first stop for all things computing at Columbia: computer support, software (<http://www.columbia.edu/acis/software/index.html>) and training. CUIT offers Norton Antivirus software free of charge to all Columbia students; just download it from the website. If you don't have this or other current virus protection software on your computer, you shouldn't be getting anywhere near the Columbia network. CUIT now offers PestPatrol, a spyware search tool as well. Spybot Search and Destroy (<http://www.safer-networking.org/en/download/>) and Ad-Aware are two other useful PC-platform programs for finding and destroying spyware on your computer. EndNote bibliographic software, file transfer (WinSCP3 or Fugu), telnet (SSH PuTTY or MacSSH/MacOSXTerminal) and web browsing software are also available free of charge. You might also find it useful to have a personal firewall on your computer (e.g. Kerio, [www.kerio.com](http://www.kerio.com)); this can even prevent program launches. Please heed the University's warnings on peer-to-peer sharing of copyrighted material; Columbia's network is not free from copyright holder scrutiny, and Columbia students using the CU network and the academic Internet2 network have been named in lawsuits filed by the Recording Industry Association of America.

Each student also has a free print allowance of 20 pages per week from any CUIT public printer (in computer labs and libraries). You can set up your computer to print remotely to any of the CUIT printers; see the CUIT webpage to find out how. If you are TA-ing a course, you can apply for a free TA account, which allows up to 100 pages of printing per week and 80 MB of network storage space (regular accounts allow 20 MB); see the CUIT webpage for information and downloadable application form. You can also purchase a \$35 semester account upgrade which will allow you to print 100 pages a week (<http://www.columbia.edu/acis/accounts/printing.html>). E3B has a poster printer that you can use for a small fee. Speak to Lourdes for details and refer to the "Poster Printer" section in the first pages of the Graduate Handbook.

### 2. **www.columbia.edu**

Manage your student account and check grades online (Student Services Online, or SSOL: <https://ssol.columbia.edu/>), check course availability via the online Directory of Classes, check final exam schedules and academic calendars via the Registrar's page, check the University Events calendar, etc. To navigate to most student services, select the "Students" link on the left side of the university homepage.

### 3. **CU Security**

Keep your laptop safe! Columbia Security (lower level of Low Library) offers computer locks (approximately \$25), PC Phone Home and Mac Phone Home software (if your computer is stolen, the software sends a message revealing the user's location the first time the computer goes online), and free identification engraving. Theft of unattended laptops is prevalent in libraries, coffee shops, restaurants and other public areas so don't let your electronics out of your sight in public. There have also been a number of thefts from E3B offices and display cabinets, so don't assume that your equipment is secure if left unattended in the department – always lock your computer, even in your office.

### 4. **The departmental listserves and E3B electronic bulletin board**

E3B graduate students have set up two ways to communicate with one another electronically. The departmental listserves allow a student to send a mass e-mail to a group of student e-mails simultaneously. To send an e-mail to all E3B M.A. students, use the address [e3bma@cvmc.ais.columbia.edu](mailto:e3bma@cvmc.ais.columbia.edu); to send to all E3B Ph.D. students, use the address [e3bphd@cvmc.ais.columbia.edu](mailto:e3bphd@cvmc.ais.columbia.edu). Please note that the listserves **do not allow sending attachments** (this is a University Computing policy); postings that contain attachments are automatically deleted by the

system. Please use the listserves judiciously in order to avoid filling people's inboxes unnecessarily – reserve for announcements of a time-sensitive nature.

The E3B bulletin board (“E3B3”) allows postings in the form of threads, where other students can respond to posted items. Access E3B3 by visiting the website <https://www1.columbia.edu/sec/bboard/e3bgrads/threads.html>. You will be asked to login using your UNI and password. E3B3 can be used for announcements of a less time-sensitive nature (e.g., items for sale, interesting news etc.) or discussions (e.g., questions about courses, requests for borrowing books, housing-related queries, etc.). E3B3 can be used for just about any topic – visit the Archive pages to look at past threads. We often post our list of truly available classes and some comments on them on this board, as well as lists of courses relevant to the Ph.D. Environmental Policy Certificate and M.A. policy requirements. Both the listserves and E3B3 are student-access-only, so they can be used for students to communicate openly with other students; professors and administrative staff do not have access.

5. **E3B student website**

The E3B graduate student committee (GSC) maintains a website that can be accessed via the E3B departmental site (under the “Students” menu, select “Graduate Students Association”) or directly at <http://www.columbia.edu/cu/e3bgrads/>. We redesigned and updated the webpage in the spring of 2006, and are currently making additional updates. Each Ph.D. student also has a profile page that can be accessed through the departmental homepage; contact a GSC representative about how to create and update profile pages.

6. **E3B course wiki**

E3B students maintain a wiki-style website that includes information on E3B academic courses and courses that fulfill Ph.D. & M.A. policy requirements. Invited users can add content including course information and brief reviews. The website is available at <http://e3bgrads.pbwiki.com/>.

7. **Library resources**

The CU library website offers a number of essential tools for conducting research, including electronic databases, e-journals, and interlibrary loan requests. You can also manage your CU library account (e.g., renew books, check due dates and fines, etc.) online. The main library portal can be accessed at: <http://www.columbia.edu/cu/lweb/>. Learning these tools now will save you a lot of time later!

Columbia's e-journal holdings are extensive; you can find many articles you need (at least in terms of recent articles) without leaving your desk. Many e-journal sites include options for downloading citations in EndNote format that can be imported directly into your EndNote library. The library website also has e-books available for viewing.

Columbia also subscribes to a large number of online literature search databases. You can search for particular databases, or browse by subject area. Some particularly useful databases are:

- ISI/Web of Science and Biological Abstracts (general)
- Zoological Record (zoology)
- Agricola (plant and agriculture references)
- ProQuest Digital Dissertations (available through the databases menu) has abstracts of Ph.D. dissertations. Dissertations are available as PDF files for dissertations published after 1997; some are available free of charge, others require credit card payment.

Many of these databases allow you to directly access PDF files for articles Columbia has in its online holdings. If you don't know how to search using Boolean operators, we highly recommend learning to do so. The library's short course on "Database Searching Essentials" is a good place to start.

Another good online resource is Google Scholar (<http://scholar.google.com>), which allows searches of scholarly literature online and includes links to PDF files of articles where possible.

You can request books online that are unavailable at Columbia by using:

- Borrow Direct (books from a smaller network of libraries)
- Science Fast Track (articles) and
- Interlibrary Loan (books and articles). Before submitting a request, check the online library catalog

(CLIO) to make sure that Columbia doesn't have the book (including e-books).

Articles (or books) that may not be available electronically or available at all from Columbia may be available through the American Museum of Natural History catalogue (<http://libcat.amnh.org/>) or the NY Botanical Garden (<http://librisc.nybg.org/screens/opacmenu.html>). Although you won't be able to download the files unless you visit those institutions or are affiliated with them, colleagues might be able to get them for you.

## 8. **Computing classes**

Both the library and CUIT offer short workshops for learning software, Unix, web design, etc. Two particularly useful courses teach you to use EndNote (bibliographic software useful for storing references and creating bibliographies automatically – the software is a free download from Columbia), Adobe Photoshop (graphics software, useful for preparing images and figures for manuscripts and web pages), and Adobe InDesign (desktop publishing software great for making posters) – if you don't know how to use these programs, especially EndNote, we would highly recommend learning. Course listings can be accessed at <http://www.columbia.edu/cu/lweb/services/workshops.html> for library offerings).

## 9. **Courseworks (<http://courseworks.columbia.edu>)**

Courseworks is Columbia's online course management software. Instructors can post syllabi, contact info, assignments, articles and other documents, and grades for students to access. Class e-mail and discussion capabilities allow easy communication between students. For many classes, Courseworks is the primary means of outside-the-classroom communication between the instructor and students, so check your course pages carefully and often. If you are the TA for a course, you will most likely be expected to post assignments, syllabi, and reading files to Courseworks; the Center for New Media Teaching and Learning (CNMTL) offers instruction and workshops to teach you how (<http://cnmtl.columbia.edu/services/workshops/index.html>). Note that the 'post multiple files' option can speed up posting files under the 'class files' section if you're TA-ing.

## 10. **Unix and Columbia networking**

Columbia's unix servers allow students space for temporary file storage and transfer. You can also create personal web pages and store the files on the Columbia network.

- a) Use WinSCP3 (Windows) or Fugu (Macs) to transfer files to your cunix account; to set up file transfer (and SSH), the address is [cunix.cc.columbia.edu](http://cunix.cc.columbia.edu); you can do this for storage when between computers or in order to send attachments if using Pine
- b) To use Pine for email, login to cunix with your SSH program (see software above); the address again if it doesn't come up automatically is [cunix.cc.columbia.edu](http://cunix.cc.columbia.edu). Once you've logged in, type 'pine'. Pine is all text-based but seems faster and easier than Cubmail to many users.

Instructions for keys are at the bottom of the Pine page. Saved attachments go to your cunix account and you can download them (see (a) above). You must upload attachments (see (a) above) separately.

- c) Personal web pages; pages you want publicly posted under your free account should go in the 'public\_html' folder on your cunix account (index.html directly in that folder, then can have other folders too). These pages will take up some of your allowed account space (out of 20Mb for MA students at least unless you pay for more; 80Mb for Ph.D. students while TA'ing); pages show up on the web under '<http://www.columbia.edu/~<your uni>/>'. there are free CUIT courses on web publishing.
- d) Scratch directory for large file temporary transfer; if you have very large scanned image files or other files that you need to transfer to another computer, one option is to use the little-known 'scratch' directory. You have to transfer relatively soon, however, as the directory is allegedly regularly erased. To get to it, just navigate up from your account directory (your uni) in your file transfer program, or use 'cd ..' and 'dir' commands from your account in unix to find it. It should be under /hmt/ or /hmt/chinchin/ or something along those lines.

11. **Funding sources, Office of Projects and Grants** (<http://spa.columbia.edu/>)

\*Note that all grant proposals must go through Sponsored Projects Administration (SPA) – this means planning and executing your proposals early, because this process takes awhile.

**Some sources of grants:**

- 1) The big ones: NSF graduate research fellowship, EPA STAR
- 2) SPA site <http://spa.columbia.edu/> Rascal : (<https://www.rascal.columbia.edu/>)
- 3) Earth Institute page sources  
(<http://www.earthinstitute.columbia.edu/education/fundingorganizations.htm>)
- 4) CU travel grants and others—see financial aid office
- 5) E3B list: from the E3B homepage, under the “Students” menu, navigate to the “Funding Sources” tab. Also accessible through the E3B grad students webpage.

**Dealing with SPA and Rascal** (<https://www.rascal.columbia.edu/>):

- 1) Location: downstairs in Room 254 Engineering Terrace
- 2) Project Officer: Alex Samsky (as2735@columbia.edu)
- 3) Steps: *Make sure that you have an animal care protocol, human subjects research protocol, or other relevant protocols filled out in Rascal (see Rascal main page—'Compliance')*
  - a. Under 'Processing Contracts and Grants', 'create a proposal' and fill proposal pages and register
  - b. Notify approvers
  - c. You approve it; chair and PI (CU person) approve it; PI finalizes it
  - d. Our Projects Officer logs in proposal; PI finalizes proposal and file proposal
  - e. Update conflict of interest form if not up to date (main Rascal menu)
  - f. Funds go from funding source to SPA/some other would to E3B (Lourdes and Maria) to student (receipts and forms required)